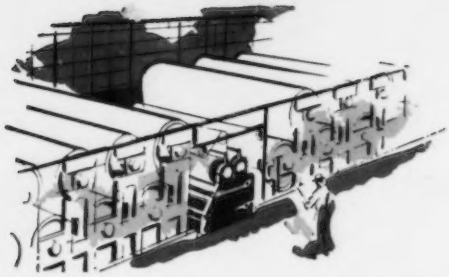
AUGUST 14, 1961

PAPER TRADE JOURNAL

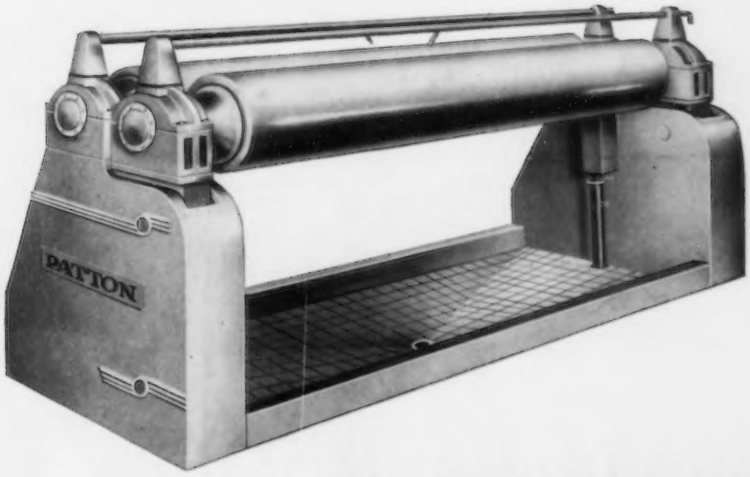
DEBUT OF "WESTERN STAR"

. . . comprises only one part of a vast $30 million expansion at St. Regis' Tacoma Kraft Center. Full details start on page 34.

- Saw kerf chips make good pulp but is their use profitable?
- Revised list shows 52 major expansions for the industry.



HORIZONTAL SMOOTHING BREAKER SIZE PRESSES



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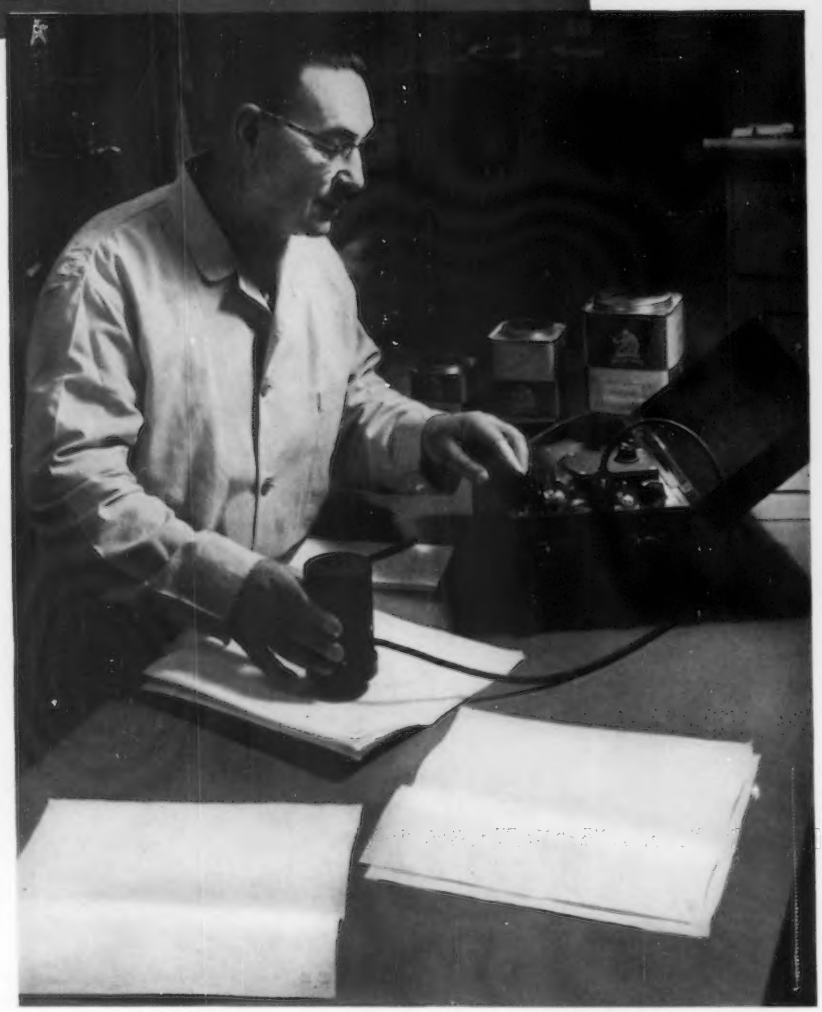

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In operation at the Nicolet mill (West De Pere, Wis.) for more than a year, the 680 has proved itself on glassines, greaseproofs and supercalendered sulphites over a range from 20 lb. to 70 lb. basis weight. The 680 has delivered 36″ diameter rolls of superb *running* quality, holding more than 13¾ miles of paper, with plenty of capacity still in reserve to meet future needs (50″ rewind diameter, 3600 fpm winding speed).

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Like other smaller Cameron duplex systems the big 680 uses combination surface-and-center winding, applying the differential principle to allow each roll to set its own winding speed, thus compensating automatically for variations in caliper.

A variable speed hydraulic main drive, with individual speed control on each of the hydraulic rewind drives, separates control of winding speed and roll density on each set of rewinding rolls. Adjustable, pneumatically actuated, tapered automatic counterbalancing controls nip pressure separately on each set of rolls.

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PAPER TRADE JOURNAL

Week of August 14, 1961
Vol. 145, No. 33

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FEATURED THIS WEEK

St. Regis Observes Opening of New Facilities at Tacoma Kraft Center

Star attractions at the very recent ceremonies marking the completion of a $30 million expansion and modernization project were the new paper and paperboard machine and the giant continuous digester. Here is what the 1,200 open-house guests saw **34**

Are Saw Kerf Chips Economical Under Present Standards?

Previous work has shown that saw kerf chips make good pulp, but is it the best method of salvaging a present sawmill waste? The Forest Products Lab. has come up with one appraisal **44**

Major Expansion Projects in the Pulp and Paper Industry

New mills and machines are listed with completion date when available. Also included separately are some of the more nebulous plans being talked about. **47**

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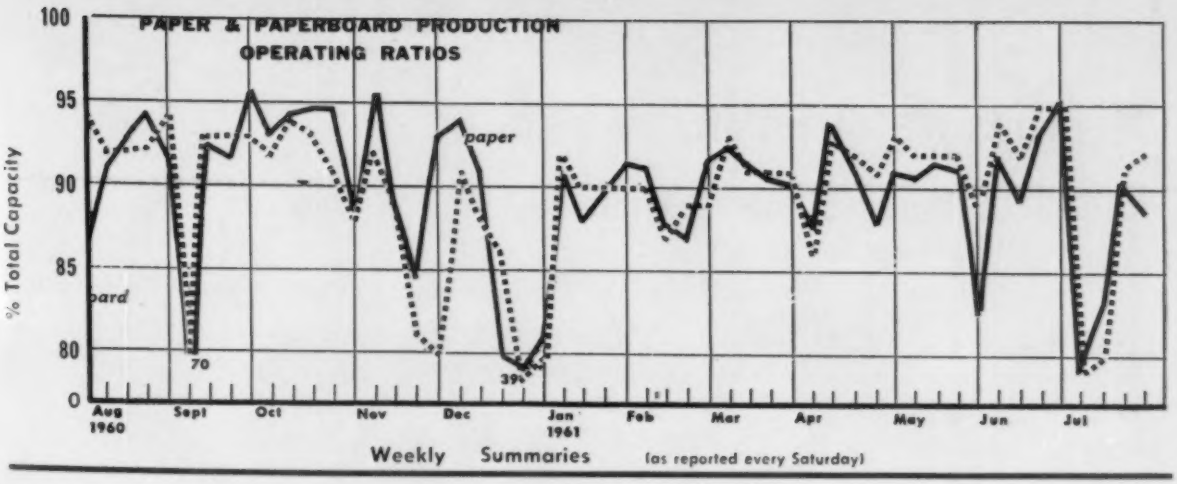

NEWS OF THE WEEK

Allied Paper Acquires Gavrin Press . . . Fitchburg Paper Seeks to Participate in AEC Steam Generating Project . . . G-P Paper Buys Midwest Container Firm . . . Mead and U. S. Forest Service Sign Forestry Research Pact .....

Superintendent Named For Nekoosa Kraft Mill . . . IP Announces Promotions At Camden Mill . . . Mooney to Manage Plant for National Gypsum . . . G-P Expands Research Staff at Beaverton . . . U. M. Pulp & Paper Foundation Elects Officers

Hoerner, Jr. Named to BDSA Post . . . Southern Bag Names DeLancey Gen. Manager . . . Bemis Bag Names Product Development Manager . . . Lily-Tulip to Build New Plant in Holmdel, N. J., as Modernization Move .....

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Prices of Fibers *67*

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REMEMBER THESE DATES

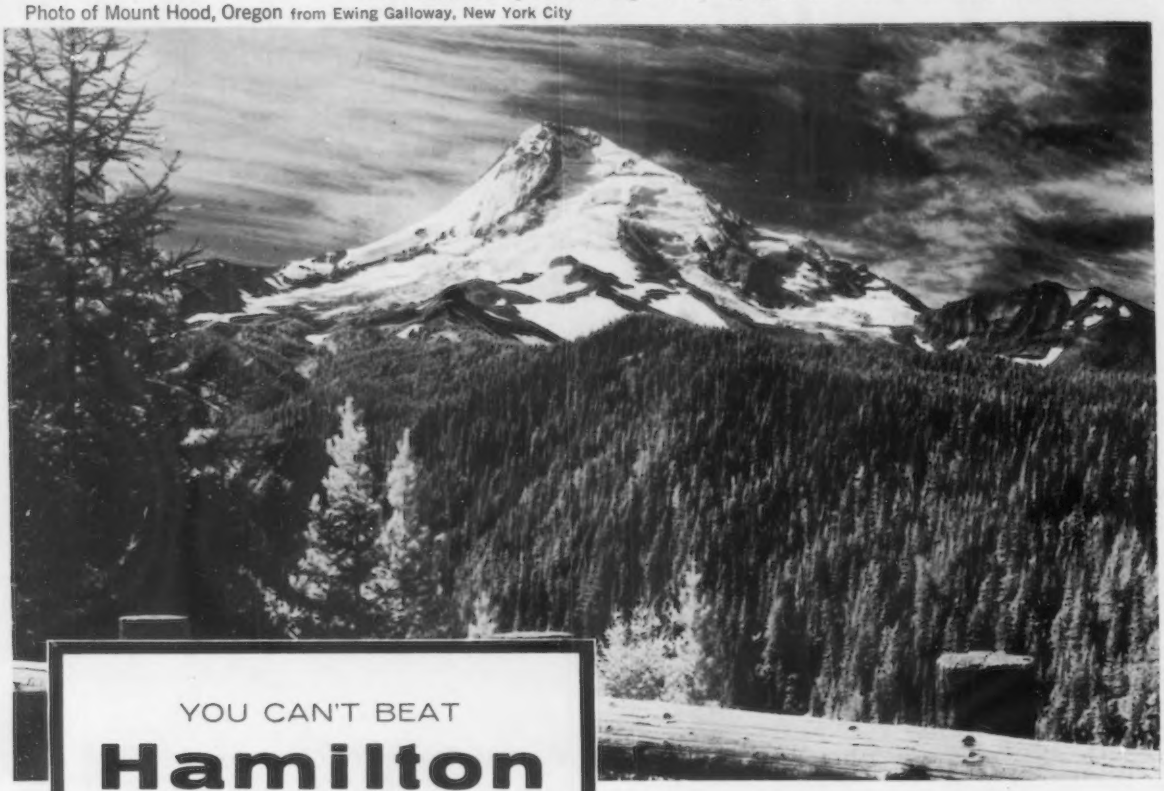
TAPPI Lignin Symposium, Edgewater Beach Hotel, Chicago, Ill.	AUGUST 14-16
TAPPI Corrugated Containers Conference, St. Francis Hotel, San Francisco, Calif.	SEPTEMBER 6-8

HAM FELTZ says:

"Reminds me of HAMILTON Felts... smoothness combined with rugged strength!"

*Idea submitted by John A. Sigrist, Packaging Corporation of America, Rittman, Ohio.

Photo of Mount Hood, Oregon from Ewing Galloway, New York City



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612 First National Bank Bldg., Cincinnati 2, Ohio."

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"If one of our 300 modern, technically proven styles won't solve *your* needs, we'll be happy to design a Hamilton Felt that will. Just ask your Hamilton Felts Service Salesman."

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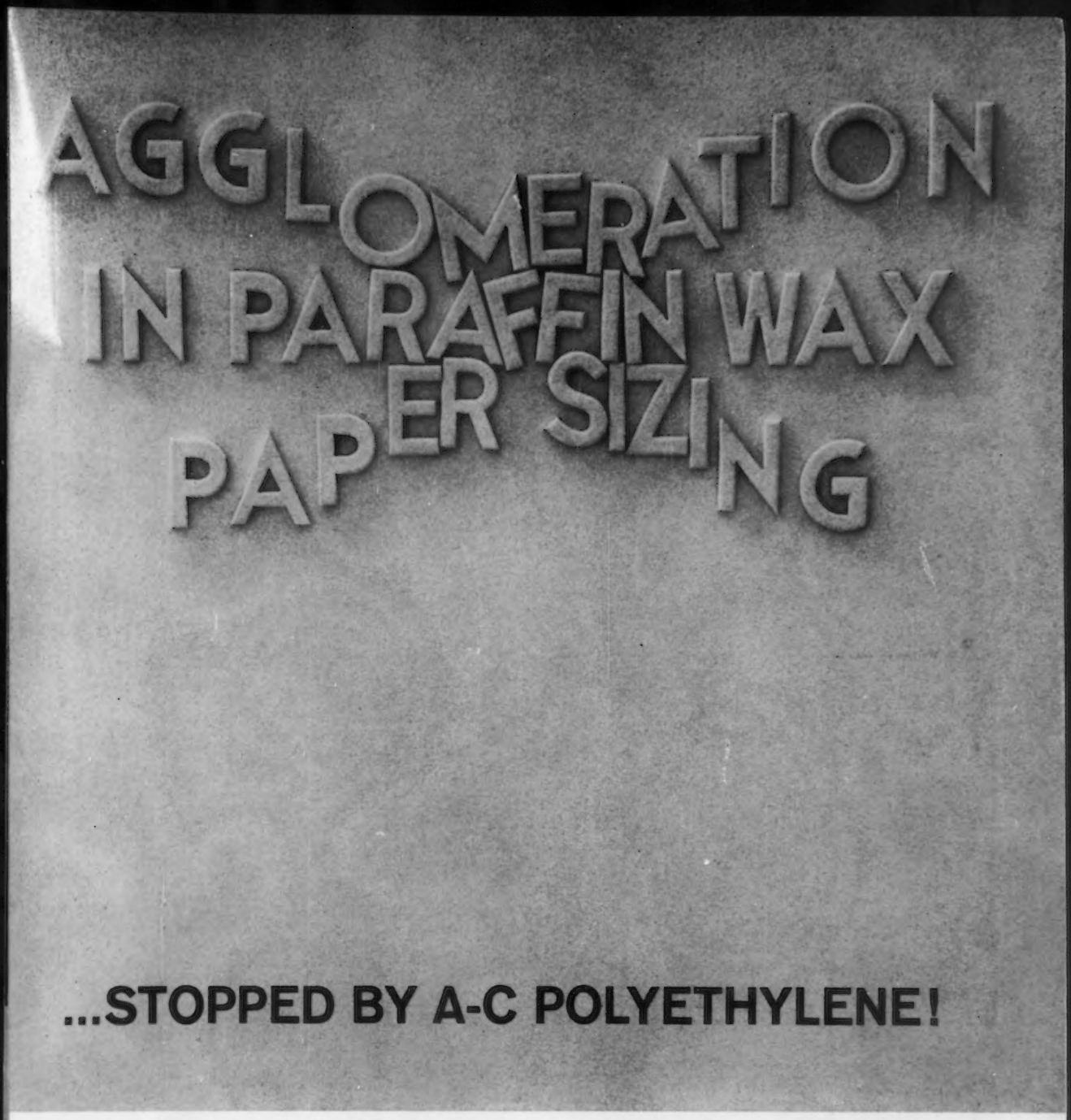

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Recent lab studies show that A-C® Polyethylene in paraffin wax sizings *improves the particle size of the emulsion*. It stops agglomeration by raising the softening point of paraffin. And it gives the emulsion greater mechanical stability.

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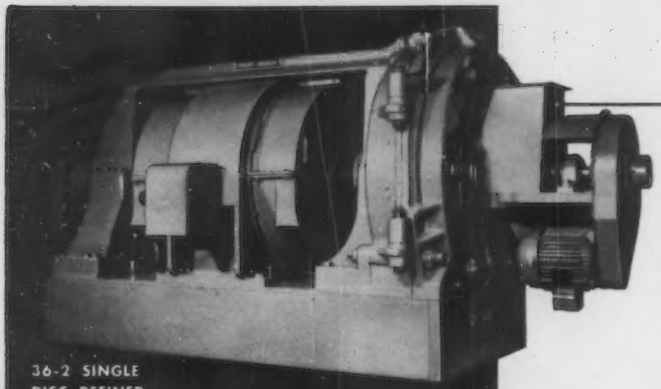
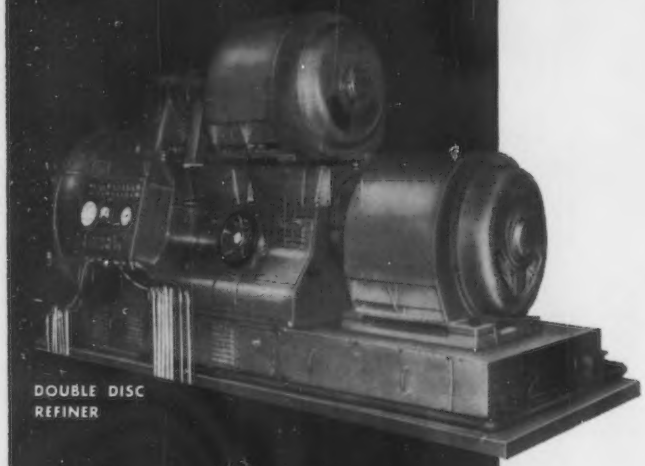
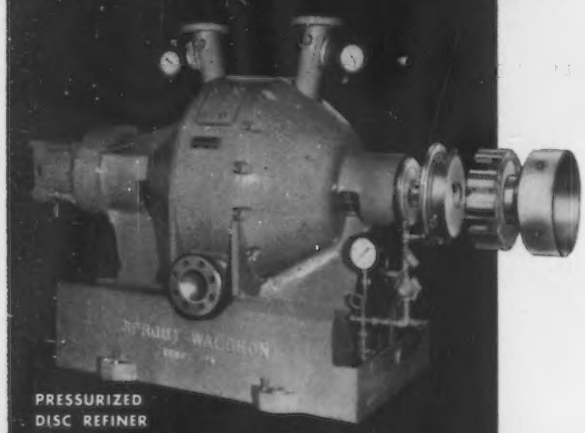


36-2 SINGLE DISC REFINER



DOUBLE DISC REFINER



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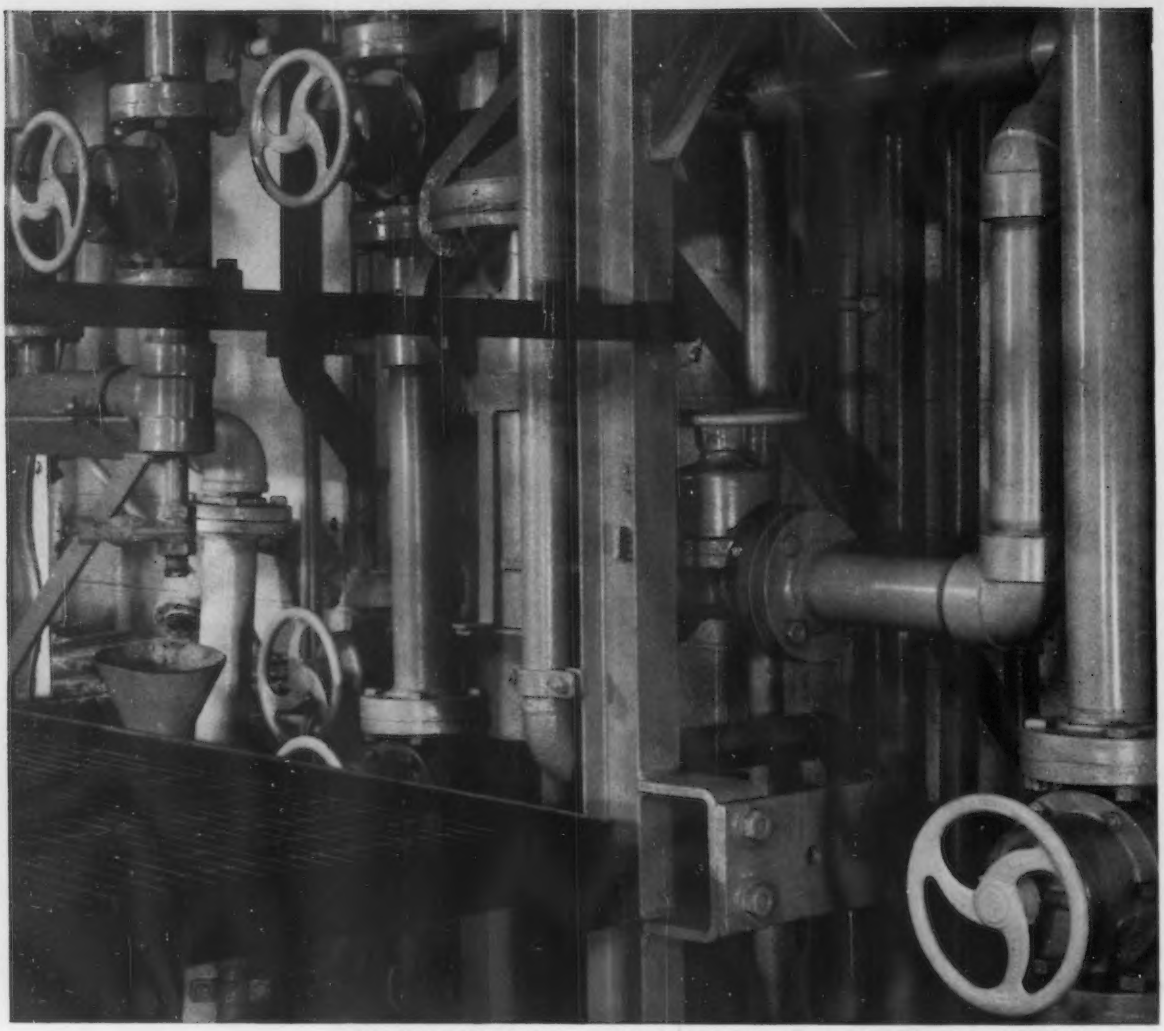

Grinnell-Saunders Straightway Valves* on duty 3 years in pioneer bleach-liquor process

In world's first continuous, automatic
ORP controlled-reaction $Ca(OCL)_2$ process . . .

Grinnell-Saunders Diaphragm Valves mark third year of trouble-free service

3 years ago, the world's first continuous, automatic semi-clarified calcium-hypochlorite process—using oxidation-reduction-potential control of reaction — went on stream at Crown Zellerbach's St. Helens, Ore. mill. Selected to control materials-flow in this pioneer installation: Grinnell-Saunders Diaphragm Valves.

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*Patented

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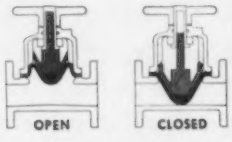

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PIPE FITTINGS • VALVES • PIPE HANGERS • PREFABRICATED PIPING • UNIT HEATERS • PIPING SPECIALTIES

Brighter whites with wet strength resins... acid stable Leucophor C is the first all-purpose optical brightener to produce maximum brightness in the beater and in the tub. Excellent stability over the entire pH range eliminates the need for buffers and enables you to re-use white water containing alum and free acid. With wet-strength resins, there's no precipitation, no yellowing of the paper. See the reverse side of this ad for additional information, and call Sandoz for a demonstration at your earliest convenience. Sandoz, Inc., 61-63 Van Dam Street, New York 13, N. Y. ALgonquin 5-1700. District Offices: Charlotte; Cincinnati; Fair Lawn, N. J.; Hudson, Mass.; Los Angeles; Philadelphia.

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apply Sandoz Leucophor C—

- in the beater • in the size press
- in spraying or dipping • in coating

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- Widest pH range (1-12)
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That's where RHOPLEX, the 100% acrylic paper coating binder, proves its worth in packaging. The coating on this sheet of folding boxboard is bound with RHOPLEX. And because it is, you see printing with real eye-catching power. Controlled ink holdout and freedom from picking results in uniformly excellent appearance. For both package designer and papermaker, RHOPLEX binders offer ideal properties.

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RHOPLEX

Facts about RHOPLEX® all-acrylic paper coating binders

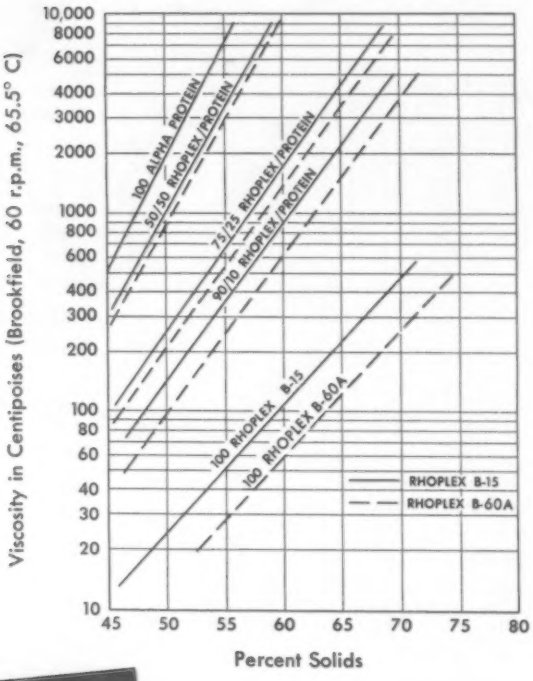
For Paper Makers

Ease of Coating—RHOPLEX produces good results in trailing blade coaters, air knife coaters, Champion coaters, or on the size press.

Ease of Formulation—Alpha protein, casein, starch and starch ethers mix readily with RHOPLEX, as do pigments and clays. In storage, coating preparation and application, RHOPLEX is stable both chemically and mechanically.

Viscosity—RHOPLEX coatings containing up to 60 percent solids can be handled readily at high speeds, provided the binder content is mainly RHOPLEX. Figure I shows effect of RHOPLEX on viscosity.

Figure I

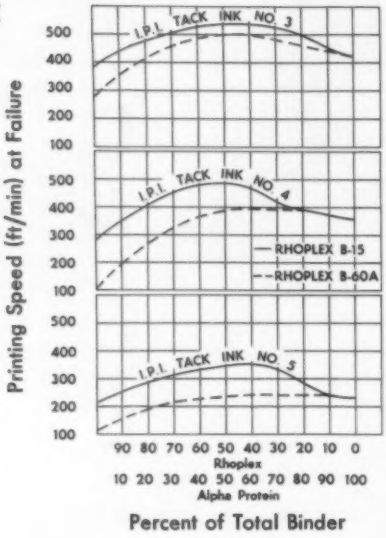


Write for a copy of the new booklet, "Rhoplex Acrylic Emulsions in Paper Coatings."

For Packaging People

Printing Quality—RHOPLEX imparts to paper a smooth, well-bound surface, exhibiting good ink receptivity and good ink holdout. These properties, in turn, contribute substantially to printing quality. Excellent color fidelity, brilliance, and printing definition are typical of printing performance on coatings bound with RHOPLEX. Pigmented coatings show a very high degree of color stability, characteristic of all RHOPLEX acrylic materials. Figure II shows effect of RHOPLEX on I.G.T. pick resistance at 16% total binder on pigment (clay-titanium dioxide, 80:20).

Figure II



Brightness and Gloss—RHOPLEX preserves the high brightness inherent in pigmented coatings. It also produces higher gloss than is possible with natural binders. Unlike natural materials, RHOPLEX is a thermoplastic, has a flow and leveling action under the heat and pressure of the calender rolls.

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A case of tissue every 33 seconds!

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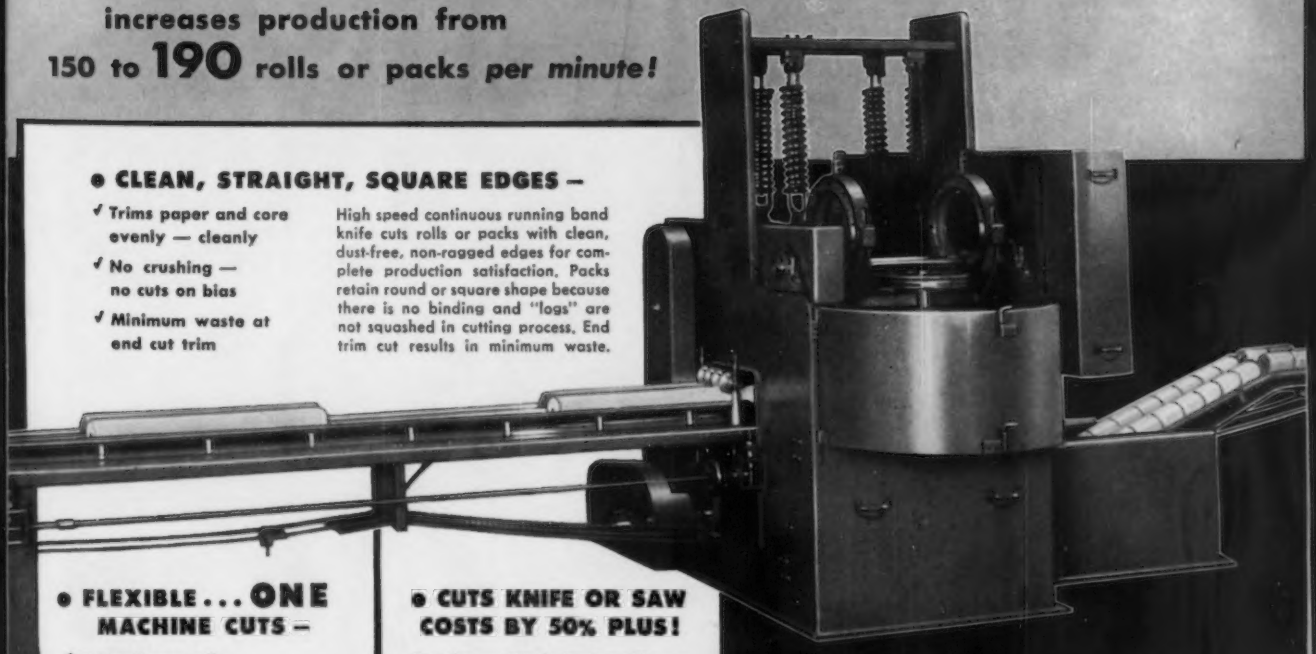
PAPER ROLL and PACKAGE CUTTER

increases production from 150 to 190 rolls or packs *per minute!*



• CLEAN, STRAIGHT, SQUARE EDGES —

- ✓ Trims paper and core evenly — cleanly
- ✓ No crushing — no cuts on bias
- ✓ Minimum waste at end cut trim

High speed continuous running band knife cuts rolls or packs with clean, dust-free, non-ragged edges for complete production satisfaction. Packs retain round or square shape because there is no binding and "logs" are not squashed in cutting process. End trim cut results in minimum waste.

• FLEXIBLE . . . ONE MACHINE CUTS —

- ✓ Toilet tissue rolls
- ✓ Household towel rolls
- ✓ Interfolded towels
- ✓ Interfolded tissues and other paper products

A single H-S cutter can be furnished to handle various types and sizes of products. Changeover parts are reasonable in cost and only nominal downtime is required to switch production. There's no need to have a separate cutter for each type of product you produce. This means important savings to you in capital investment, labor and space.

• CUTS KNIFE OR SAW COSTS BY 50% PLUS!

Tested operations by leading mill users prove knife cost savings of 50% and more! Exclusive H-S, *low cost* endless band knife 17' long x 3½" wide lasts considerably longer than conventional types. Knife maintains peak cutting efficiency throughout its life because it is continuously sharpened by automatic grinding wheels while running. *It need never be removed* until completely worn and ready for discard.

The ideal high production combination!

H-S Paper Roll and Package Cutter *and* 60-B Automatic Roll Winder

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New mechanical innovations have increased roll and package production from *150 to 190 per minute!* . . . A highly important factor in today's automation production. Two lanes of products are fed, cut and delivered simultaneously — in length cuts of 4" to 12" in ½" increments — log diameters of 4" to 5½". Can be used independently or in-line with automatic roll winders. Heavy-duty construction and counterbalanced rotary and eccentric motion provide smooth, dependable, trouble-free operation. Write today.

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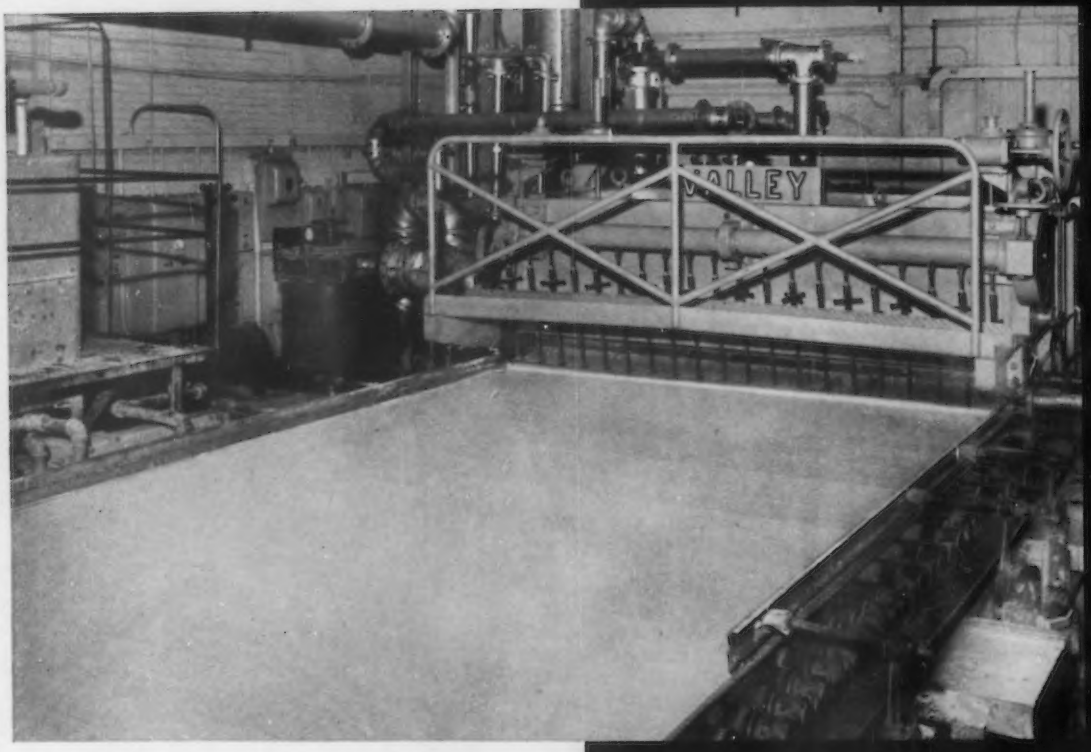
SMALL MACHINES LIKE BIG MACHINES MAKE PAPER TOO!



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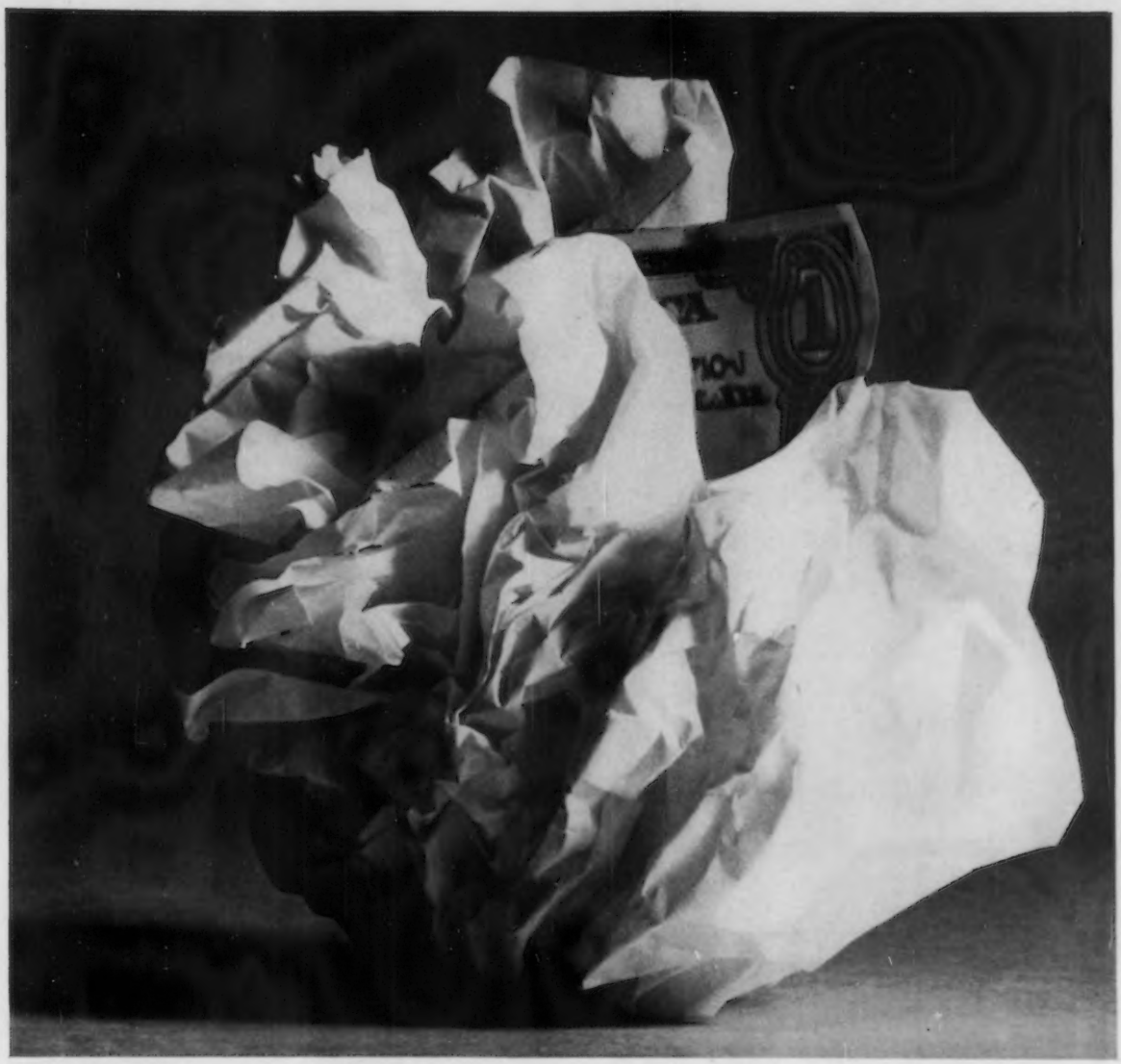
Saint Laurent, Montreal 9, P.Q. Canada



MORE THAN paper is thrown away when the efficiency of the size has not been fully realized. Time and money are also wasted. Don't let your mill face these losses. Consider Cyanamid's **high quality rosin sizes**—fortified and unfortified, liquid and dry—for dependable, cost-saving performance. And in back of Cyanamid's **high quality rosin sizes** are those all-important hidden ingredients... Cyanamid's extensive manufacturing and research facilities, and the skilled personnel who man them. Your Cyanamid salesman, with his technical training and paper-making knowledge, is truly your partner in paper progress. Ask him to give you complete information about Cyanamid's **high quality rosin sizes.**

CYANAMID

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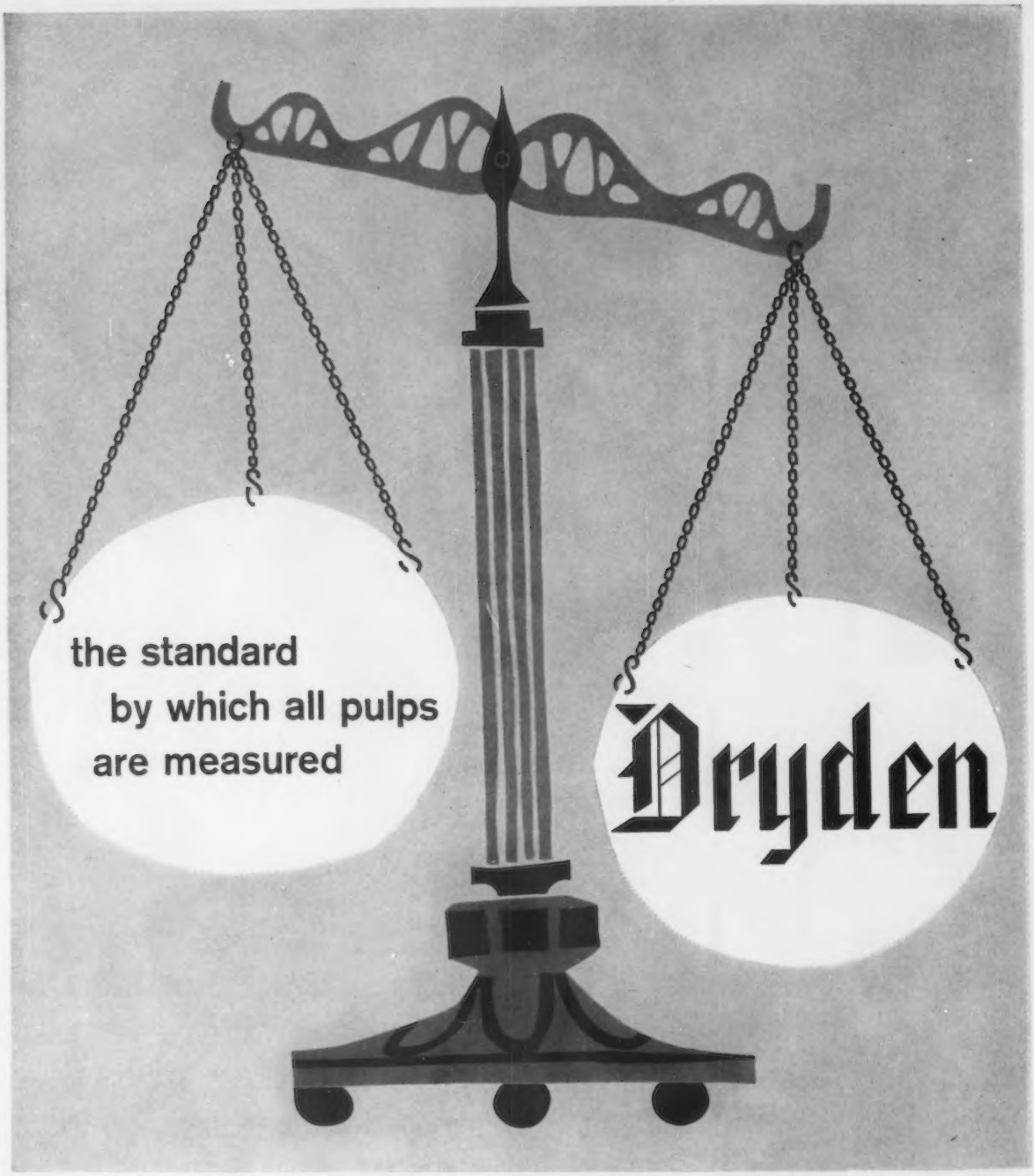

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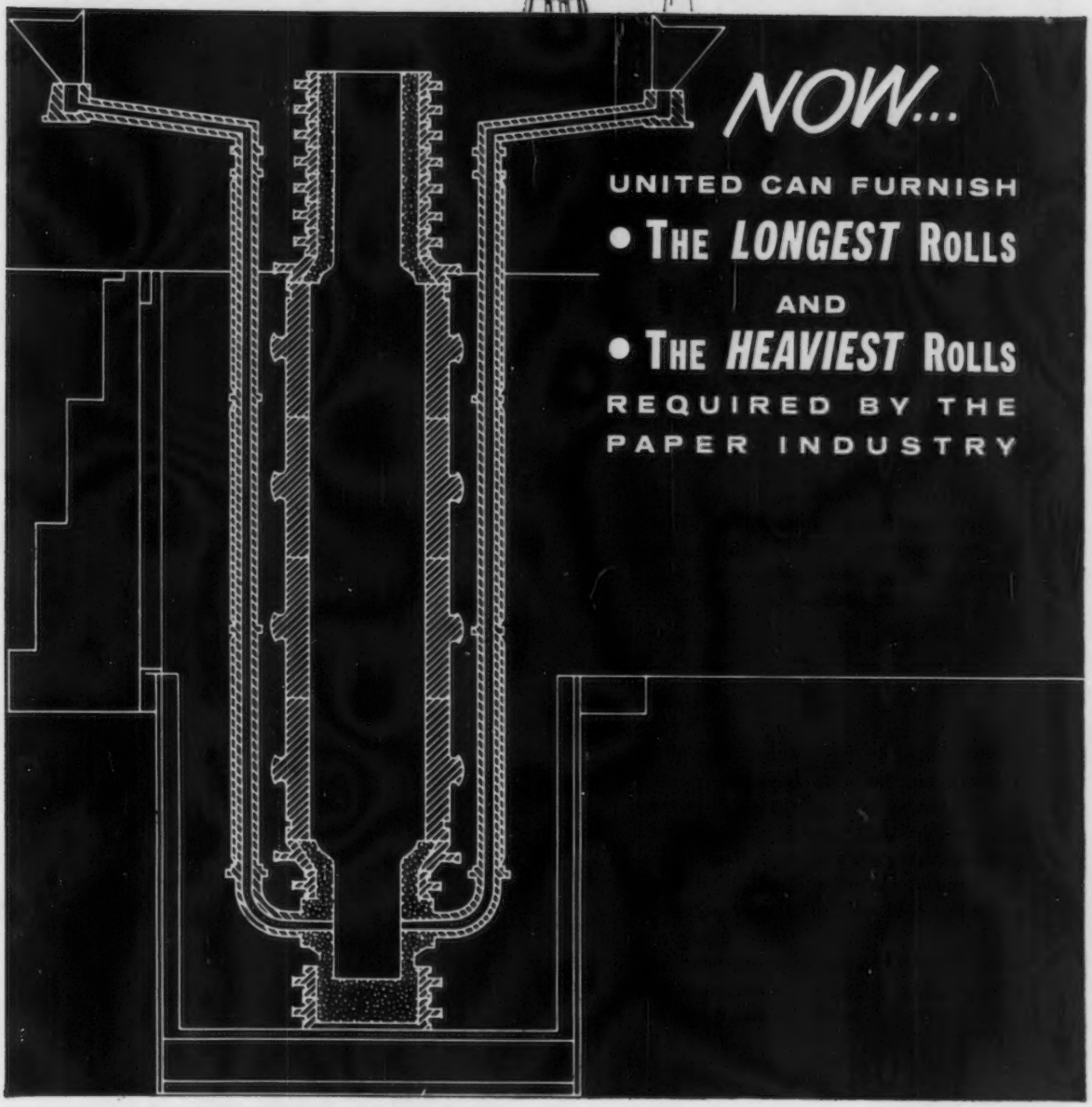
UNITED® PAPER MILL ROLLS



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UNITED CAN FURNISH

- THE *LONGEST* ROLLS

AND

- THE *HEAVIEST* ROLLS

REQUIRED BY THE PAPER INDUSTRY

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Designers and Builders of Ferrous and Nonferrous Rolling Mills, Mill Rolls, Auxiliary Mill and Processing Equipment, Presses and other Heavy Machinery. Manufacturers of Iron, Nodular Iron and Steel Castings, and Weldments.

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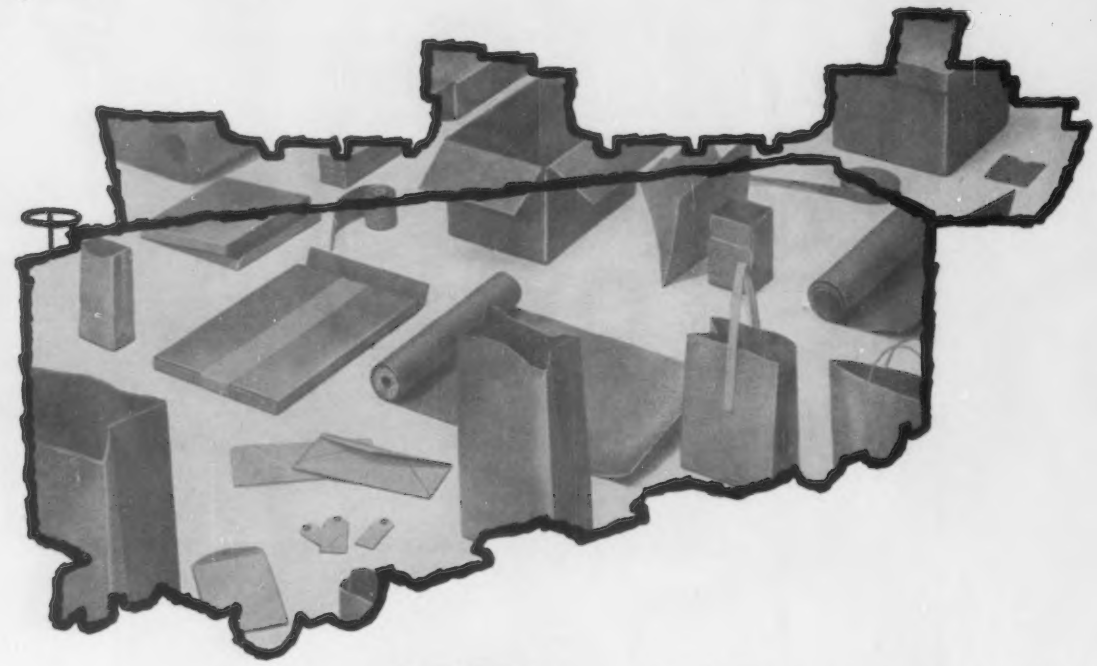
Progress...Leadership United for Sixty Years

WEST END

advance planning OF ECONOMICAL SALT CAKE TRANSPORT ANTICIPATES INDUSTRY'S GROWING NEEDS



WEST END program of utilizing economical water transport and new Jumbo hopper cars with 60% additional capacity enables West End to move salt cake at great distances economically. With a vast natural raw material supply and large, expanding production capacity, West End is solidly qualified as a major supplier to handle the complete requirements of its customers dependably, economically and efficiently within a wide geographical area.

Stauffer CHEMICALS

WEST END CHEMICAL COMPANY • DIVISION OF STAUFFER CHEMICAL COMPANY

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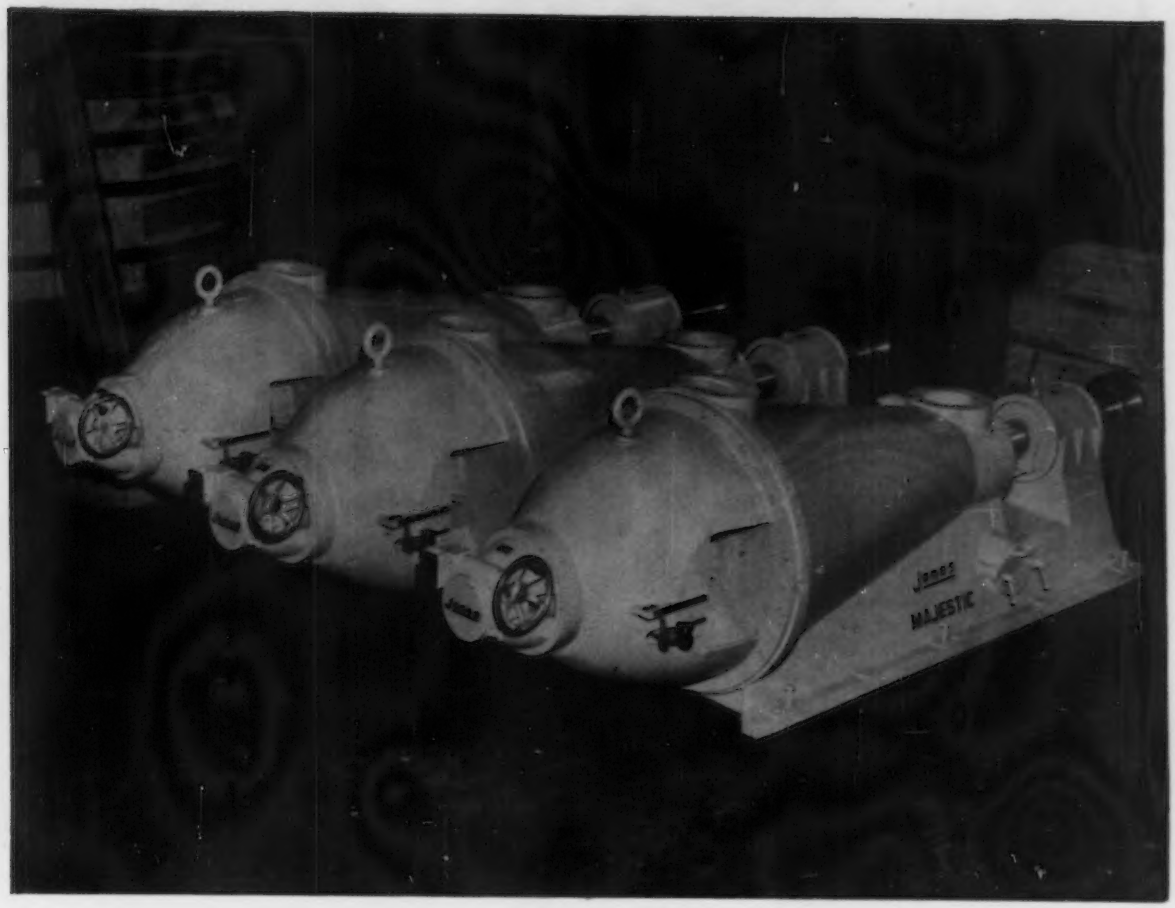
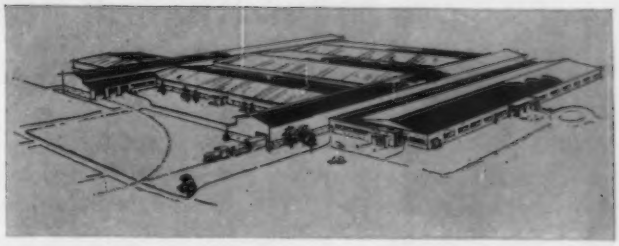
New Jones Majestics



. . . precision built in our new plant for the world's newest mills

Some things *are* old about these Jones Majestics . . . quality refining results, efficiency of operation and ease of maintenance, for example. But otherwise practically everything else is *new* . . . like the simplified unit shell construction, the base-mounted scale to indicate plug position, the improved design of bearings, packing glands and Accruset adjusting mechanism. They're the first machines off the production line in Jones' new Pittsfield plant . . . and first choice of the world's newest and finest mills. For full details write to E. D. Jones Corporation, Pittsfield, Mass. Ask for Bulletin EDJ-1036.



New Jones Plant in Pittsfield is one of the largest pre-fabricated steel buildings in the country. In it are incorporated the very latest production methods and facilities to assure Jones' continued leadership in the field of pulp mill equipment and stock preparation machinery.

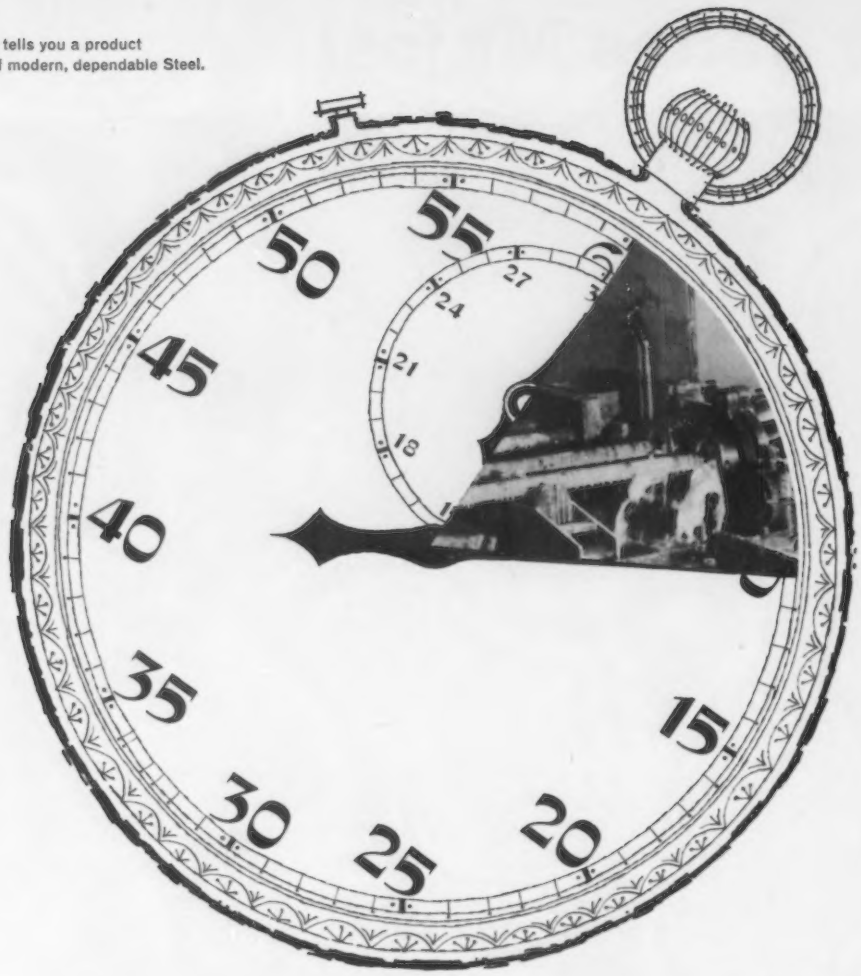
Canadian Associates:
The Alexander Fleck Ltd.
75 Spencer St., Ottawa

E. D. JONES CORP. · member BELOIT group · PITTSFIELD, MASS.

Jones

PULP MILL EQUIPMENT AND
STOCK PREPARATION MACHINERY

This mark tells you a product is made of modern, dependable Steel.



The ten most important seconds in the life of a pressure tube

Every length of USS National Electric-Resistance Welded Pressure Tube must pass a hydrostatic pressure test before it leaves our mill.

Each tube is fitted in leakproof heads and filled with water treated with a corrosion inhibitor. After all air is purged, pressure is applied and held for ten seconds. Internal hydrostatic pressure varies with size as prescribed by applicable ASTM specifications which are designed to produce a wall stress from 16,000 to 24,000 psi. Typical pressures so calculated are 4,000 psi for 1″ O.D. x .085″ wall and 2,100 psi for 3″ O.D. x .134″ wall.

Our rigid inspection of each pressure tube promises long efficient service in boilers, heat exchangers, condensers, super-heaters, economizers and other pressure applications.

For your next installation, consider USS National Electric-Welded Pressure Tubes. They are stocked all over the country by National Tube Distributors. Our trained Mill Service Force is also available for field consultation. Write National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

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USS National Tube Division of United States Steel

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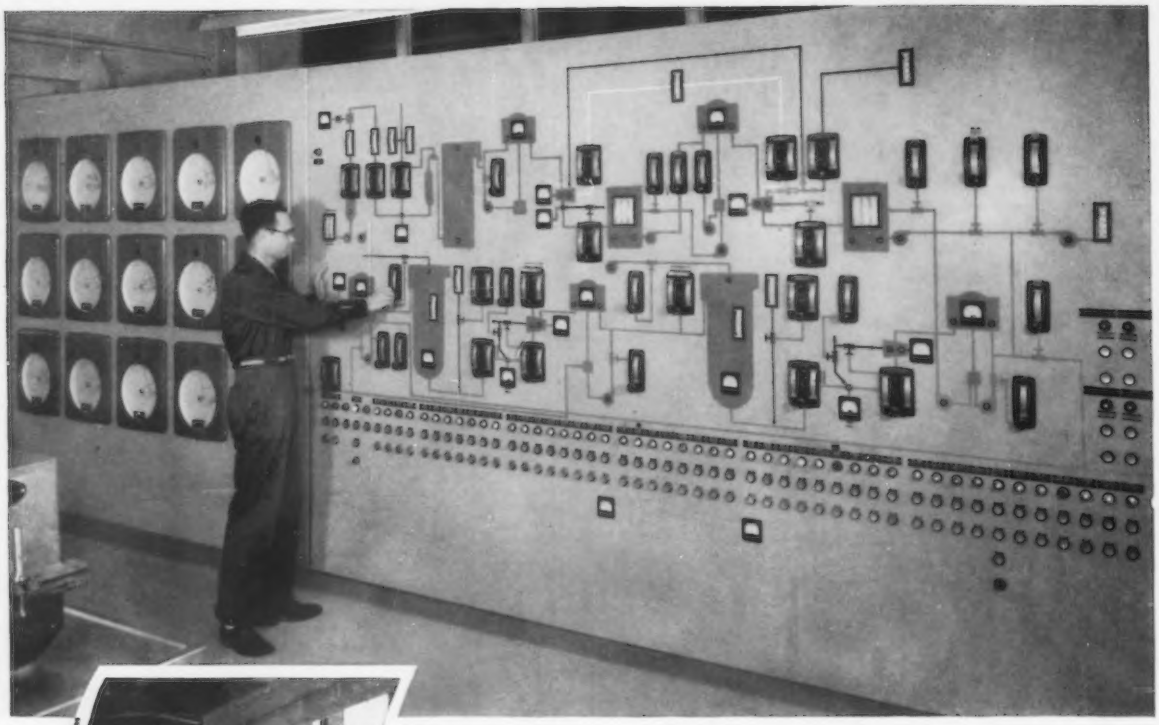
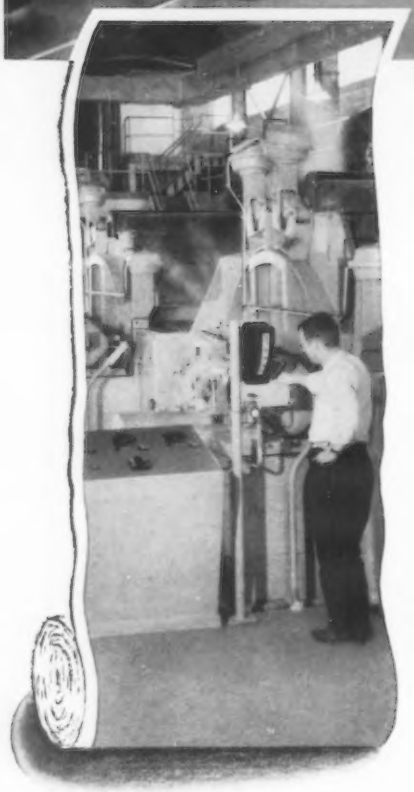
Electronic Draw Speed Indicator

for accurate felt draw and synchronization measurement.

Ask your **HUYCK MAN!**

* Applied exclusively by Huyck Field Service Engineering





Photos courtesy Marathon Southern Corporation

Bailey controls Marathon's five-stage bleach plant!

Marathon Southern's five-stage bleach plant at Naheola, Ala., is one of the most completely instrumented in southern U.S.A.

Rigid quality control—automatic and foolproof—keeps production going at top speed with unvarying excellence in the finished product.

The panel board in the central control room (above) was built and instrumented by Bailey. Note how it is divided into two sections. The 15 Bailey Recorders in the recorder section provide continuous circular chart records. The functional graphic panel on its right provides a complete visual picture of the entire process. Important control variables such as stock consistency, stock flow, bleach liquor flows, stock temperatures, etc., can be watched and instantly corrected, either automatically or manually.

At the same station, the operator can supply consistency-controlled stock (from any of four storage towers) to any of the semi-bleach, pine bleach, or gum bleach pulp chests on a ratioed flow, automatically controlled basis.

Each of the five vat bleach washers is equipped with automatic level control (as shown at left).

This is but one example of how Bailey is helping pulp and paper processors to greater degrees of automation, efficiency, and quality control. Let your Bailey Engineer suggest applications to fit your operation. Or write for specific control systems information for your entire plant operation. P149-1

PULP AND PAPER DIVISION

BAILEY METER COMPANY

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In Canada—Bailey Meter Company Limited, Montreal

BAILEY METERS

things look better...

with DYLEX® latices in the paper coating

KOPPERS

With Koppers new series of latices in your coatings, paper has unexcelled printability. Clear, sharp, true-to-life reproductions. Turn the page and find out why!

things look better...

with DYLEX latices in paper coatings because they *blend* perfectly with other coating additives. They're less foamy, have less odor, are easy to apply, have excellent mechanical stability. And they strengthen coated papers for today's modern high-speed printing presses. DYLEX latices coat *smoothly;* they won't lump or streak. Papers print clearly without defects and they won't pick. Type and color illustrations show off with remarkable sharpness. Papers coated with DYLEX latices have high gloss.

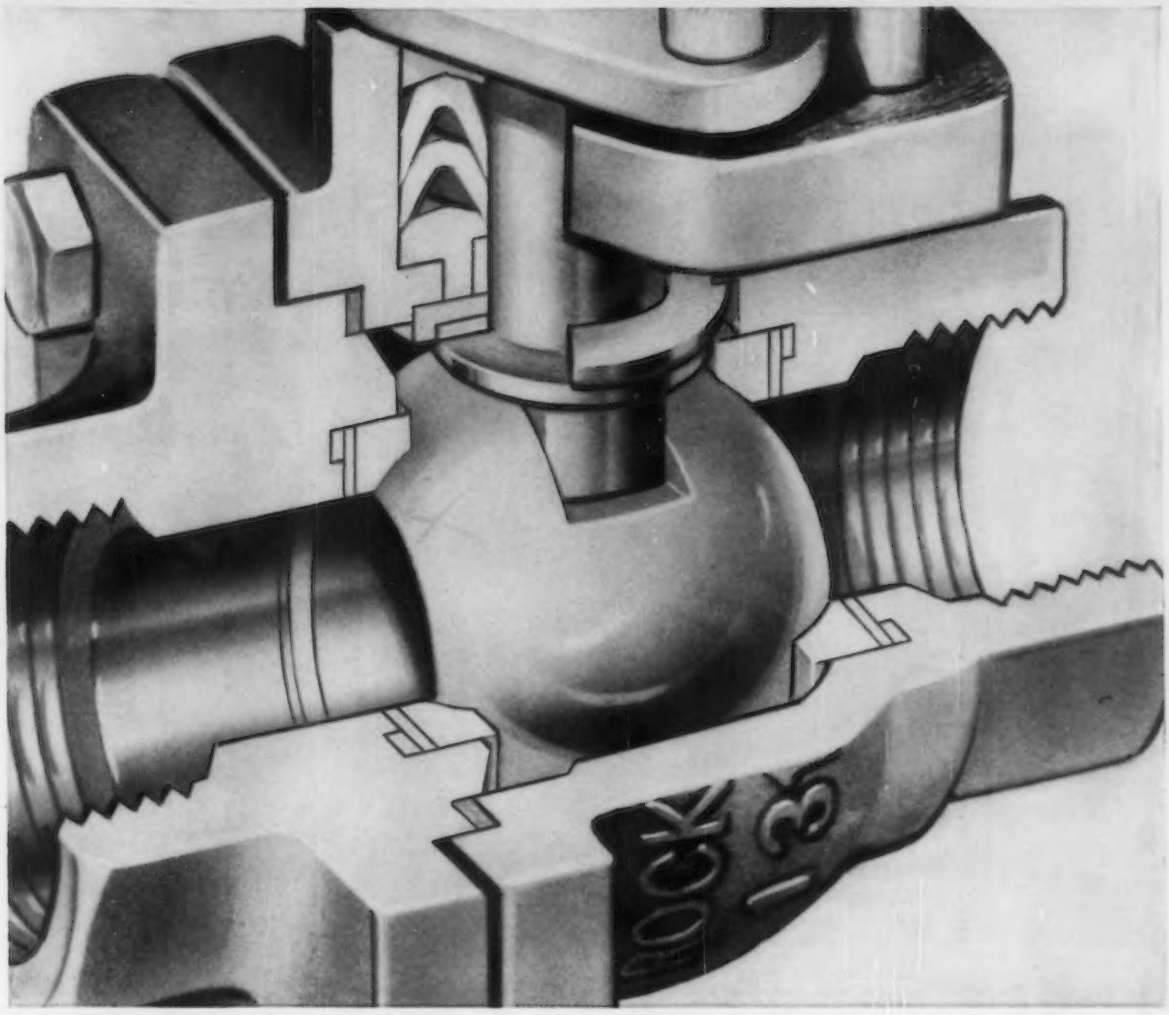
Koppers produces DYLEX K-52 for conventional clay coatings; DYLEX K-54 for superior adhesive qualities; and DYLEX K-85 for specialty papers requiring extremely high gloss. For more detailed information on how these fine latices can make smoother, stronger paper coatings for you, write Koppers Company, Inc., Plastics Division, Dept. 161, Pittsburgh 19, Pennsylvania.

KOPPERS PLASTICS

Fabric and fashion illustrations courtesy of E. I. du Pont de Nemours & Co., Inc.

This insert is printed on Polar Offset Enamel—manufactured by Oxford Paper Company, a prominent user of DYLEX K-54 latex for paper coating.

TAKE A CLOSE LOOK AT ROCKWOOD BALL VALVES



Why look for spring-loaded ball seats?

Here are the important reasons. Spring-loaded ball seats are the only kind you can depend on for long-term, tight sealing. Ordinary ball seats wear with use, become loose, leaky and imbedded with foreign particles.

That's why *every* Rockwood Ball Valve has seats with conical springs that automatically compensate for wear, pressure changes and temperature effects. The spring's constant, even pressure against the entire seat keeps it tight against the ball . . . for positive, lasting, leak-proof service through thousands of turns.

And Rockwood Ball Valves have these other important advantages:

Larger waterway diameters for lower pressure loss.

Wider choice of casting materials, mounting styles, operating methods, ball seat materials — in pipe sizes from ⅜" to 14".

Time-proven dependability. Rockwood was the first to manufacture a commercial ball valve, which still sets the standard of quality in ball valve design.

Get the complete details from your Rockwood man or write Rockwood Sprinkler Company, Ball Valve Department, 1008 Harlow Street, Worcester 5, Mass. Distributors in all principal industrial areas. Rockwood Sprinkler Company, A Division of The Gamewell Company, A Subsidiary of E.W. Bliss Co.

ROCKWOOD

BALL VALVES

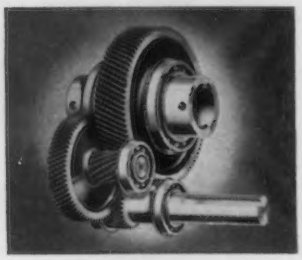
...the quality-engineered package

that simplifies speed reduction

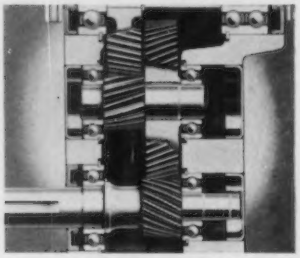
DODGE TORQUE-ARM, America's most widely used shaft mounted speed reducer, will save money for *you.* No foundation, no sliding motor base, no flexible coupling, no installation fuss. Developed and perfected by Dodge, this reducer has been so widely accepted in industry that it is now built and stocked in this unmatched range of sizes and models: capacities up to 170 hp; output speeds from 10 to 400 rpm; ratios of 5:1, 15:1, 25:1; speed ratios up to 175 to 1 with correct selection of speed reducer and V-belt drive. Built-in backstop available. Also positive overload release. Vertical models. Flange mounted models. Special application models . . . Go modern—go Torque-Arm! See your Dodge Distributor, or write us.

Dodge Manufacturing Corporation, 2900 Union St., Mishawaka, Ind.

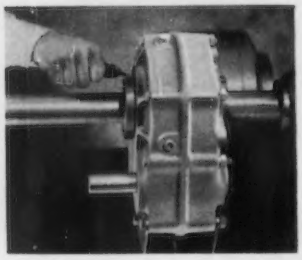
Rugged, semisteel housing holds bearing seats in line for entire life of unit. Laughs at loads. Corrosion resistant.



AGMA rated helical gears. Soft cores withstand shock; hardened surfaces defy wear. Teeth are crown shaved.



Gears are located *between* bearings and carry their loads without strain. Longer life, higher efficiency.



Unit slides completely onto shaft and locks on *both* sides of housing. This baby stays *put*—runs truer longer.

The Products with the Pluses... **DODGE**

of Mishawaka, Ind.

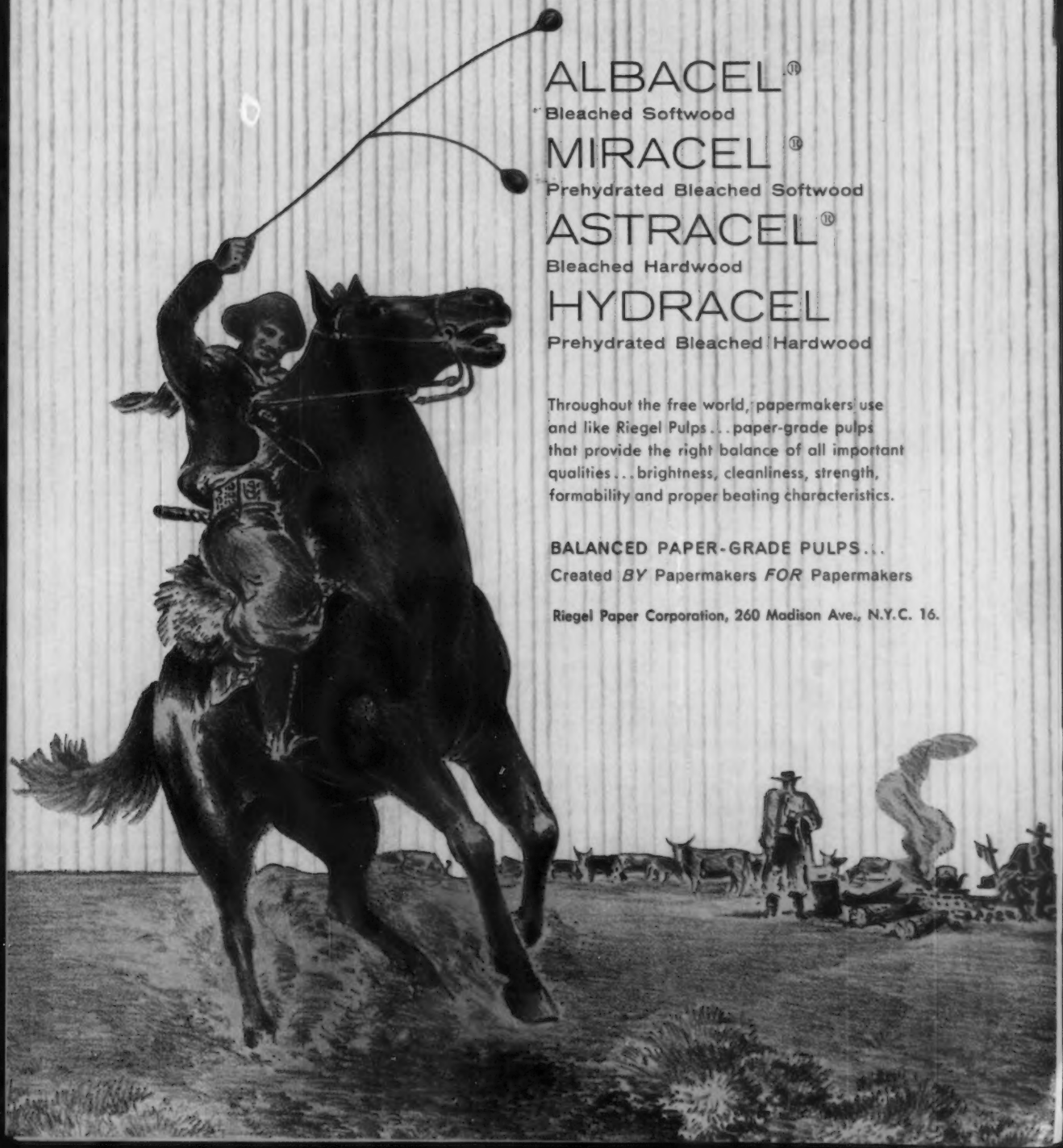
CALL THE TRANSMISSIONEER, your local Dodge Distributor. Look under "Dodge Transmissioneer" in the *white* pages of your phone book. Factory trained by Dodge, he can give you valuable assistance.

In Argentina as well as in the U.S.A. . . .

papermakers use and like

RIEGEL PULPS

CHLORINE DIOXIDE BLEACHED



ALBACEL®
Bleached Softwood

MIRACEL®
Prehydrated Bleached Softwood

ASTRACEL®
Bleached Hardwood

HYDRACEL
Prehydrated Bleached Hardwood

Throughout the free world, papermakers use and like Riegel Pulps . . . paper-grade pulps that provide the right balance of all important qualities . . . brightness, cleanliness, strength, formability and proper beating characteristics.

BALANCED PAPER-GRADE PULPS . . .
Created *BY* Papermakers *FOR* Papermakers

Riegel Paper Corporation, 260 Madison Ave., N.Y.C. 16.

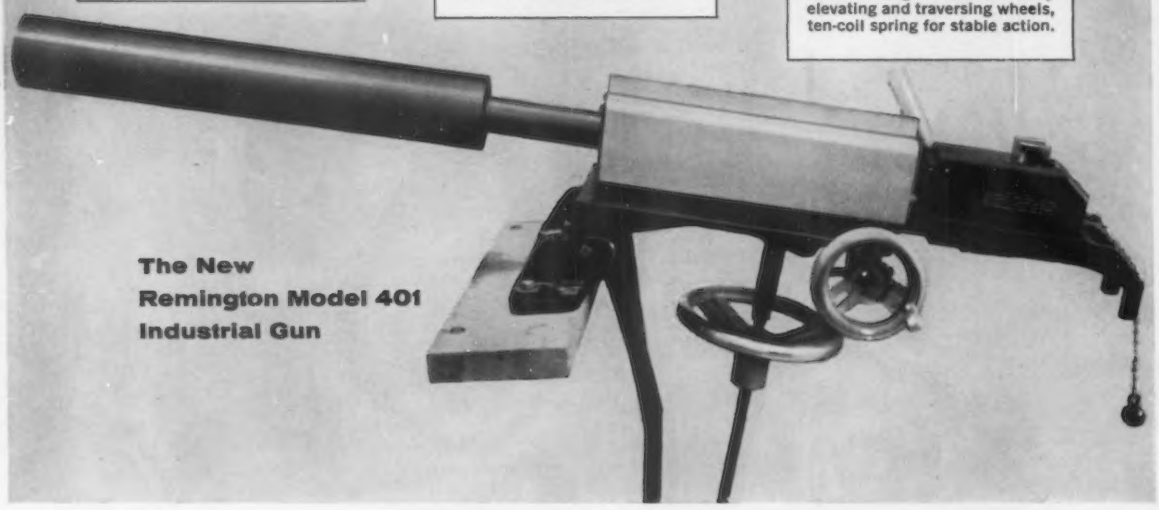
New— Remington Industrial Gun

offers you these operating advantages—

NEW Built-In Muffler... reduces firing noise up to 50%. Strong, one-piece welded construction. Removable.

NEW Stellite-Lined Barrel... gives constant energy to slug, improves ejection, and gives longer barrel life. Breech design permits full-barrel sighting.

NEW Lighter Construction and Recoil Action... makes for easier handling. Aluminum-alloy elevating and traversing wheels, ten-coil spring for stable action.



The New Remington Model 401 Industrial Gun

Remove clinker rings in minutes ...save time and money!

You save valuable kiln downtime and man-hours in removing clinker build-ups with the new hard-hitting Remington Model 401 Industrial Gun. It's designed for use in rotary kilns for cement and lime manufacture, refractories and lime-sludge operations. This newly designed gun brings rings and other troublesome kiln formations down in minutes!

No need to wait until the kiln cools. In fact, there's no need to turn off flame or stop rotation until ready to fire. To operate, just load—aim—FIRE—and up to 9,000 ft.-lbs. of knockdown power smashes into the clinker build-up. A few well-placed shots and rotation of the kiln will cause the ring to crumble. Then you're back on a full-time schedule!

Here's the easy, cost-saving way to remove build-ups—without damage to kiln or lining. The new Remington Industrial Gun and one man can save you money.

For information about the advantages of this new gun and how it will help solve your clinker build-up problems, write to the address below.

ONE-MAN OPERATION is made more practical by the special construction of the new Remington Industrial Gun • Spade grip and special corrugated operating handle reduce strain for the operator • Safety features include provision for a protective shield which can be fitted to kiln opening to block heat and clinker fragments • Mortised breech block makes it impossible to fire when breech is not fully closed • New-type ejector gives positive ejection of fired shell. Simpler in design—has longer life.

3 REMINGTON INDUSTRIAL SHELLS

for variety of power...

Magnum Shell—new, improved—3-oz. special lead-alloy slug—delivers 9,000 ft.-lbs. of energy accurately, every shot.

Standard Shell—3-oz. lead slug—delivers 7,500 ft.-lbs. of energy for shorter kilns.

Special Shell—2-oz. special zinc-alloy slug—delivers 7,500 ft.-lbs. of energy.

All shells now available in new easier-to-handle packing.

Remington DUPONT

Remington Arms Company, Inc., Bridgeport 2, Connecticut

Trends

Pulp Production Even on First Half

Total wood pulp production in the first half of this year was virtually the same as in 1960, being something less than one half of one per cent ahead, according to the U. S. Pulp Producers Ass'n. Shipments of domestic pulp to U. S. mills for the six-month period were off 5%, while exports were up 7%. For the month of June, production was up 3%, domestic shipments up 1% and exports off 25%.

Pulp Export Picture Changes Direction

While U. S. pulp exports were off in June compared with the same month a year ago, as pointed out above, they are still 7% ahead for the half year. Analyzing pulp exports for the period, we find that shipments to Canada were off 3% compared with last year and off 1% to Europe, but in contrast exports to Latin America rose 22% and to "Asia, Africa & Pacific" were up 26%.

Corrugated Boxes Running Ahead

Output of corrugated boxes for the seven months, January-July, of this year was 2% ahead of the same period last year, in spite of one more working day in the 1960 period.

Another Expansion Round Underway?

Modest but definite signs of another round of industry expansion (before we have digested the last) are contained in the list of current projects published on pages 47, 48 and 51 of this issue.

Pulp Imports Steady But Sources Change

Pulp imports into this country for the first five months stand at virtually the same level as for January-May, 1960. However, there has been considerable shift as to country of origin as indicated by the following comparisons with last year: Canada (major supplier, accounting for about 90%) +5%, Sweden −29%, Finland −36%, and Norway −72%.

Canadian Pulp and Wrapping Up — Board Off

Canadian paperboard production in the first six months was off 1% from a year ago, while exports were down 5%. Canadian wrapping paper output, in contrast, was ahead 5% for the period and exports of this grade were up 9%. In Canada total wood pulp production in the first half was ahead 4% while pulp exports were up 7.5%.

Rader System Adapts Chip Movement to Plant Layout

Ability of Rader pneumatic conveying systems to move chips from any point in a plant area to any other point, regardless of layout or intervening obstacles, is well illustrated by the setup at Howard Smith Paper Mill Ltd.'s plant at Cornwall, Ontario.

The chip storage pile is approximately 1900 feet from the pulp mill digesters and is separated from the plant by a large parking area and some of the mill buildings themselves.

The Rader blowers and conveyor pipes easily carry the chips the full 1900 feet, rising into the air at the mill approaches to clear driveways and intersecting streets. Capacity of this long line is 126 tons of chips per hour.

The long line is complemented by a second Rader pneumatic system which carries chips from the woodroom to outdoor storage.

In this photo, the log piles are in the foreground, with the woodroom, chip storage piles, parking area and mill in the background. The "long line" conveyor pipe is clearly seen running from the woodroom to the mill, to the right of the storage pile and parking area.

Rader can furnish the engineering know-how and equipment to provide any desired pattern of chip movement in wood products and pulp plants.

Write to Rader for information on pneumatic handling of chips.

RADER PNEUMATICS

1739 N.E. 42nd Avenue, Portland, Oregon

BOSTON	EUREKA, CAL.	LOCKPORT, ILL.	LOS ANGELES
MEMPHIS	SYRACUSE	VANCOUVER, B.C.	PEMBROKE, ONT.

PAPER TRADE JOURNAL
WEEK OF AUGUST 14, 1961

Fitchburg Paper Seeks to Participate In AEC Steam Generating Project

Fitchburg Paper Co., Fitchburg, Mass., whose corporate roots extend back to the kerosene lamp days of 1864, has applied to the Atomic Energy Commission to participate in a demonstration low-temperature process steam generating project incorporating a nuclear reactor.

"We feel we are in a good position to meet the terms and conditions laid down by the Federal government for this project," George R. Wallace, 3rd, president of Fitchburg, said when the Atomic Energy Commission formally announced receipt of his company's application. "This is the first real chance industries of our size have had to come in on the atomic energy program. We are extremely enthusiastic about the prospects."

The Atomic Energy Commission announced that it expects the demonstration reactor to provide technical and economic data on the practicality of such plants in high fuel cost areas, besides making a substantial contribution to the development of reactor technology. The nuclear portion of the project would be financed principally by the AEC and would include an indirect cycle nuclear steam supply system designed to meet the saturated steam requirements of the participating plant. Fitchburg Paper Co. is expected to provide the site and facilities for the use of the steam, operate the entire plant for at least five years as part of its process steam installation, and purchase the steam produced by the reactor.

According to AEC plans, the reactor project should be ready for operation in about three and a half years.

The design would be based upon existing technology, and have an output capacity of from 30,000 to 40,000 thermal kilowatts at steam pressures ranging from 15 to 200 pounds per square inch.

G-P Paper Buys Midwest Container Firm

Purchase of a mid-western container company and plans for construction of a new container plant in northern California have been announced simultaneously by President Robert E. Flowerree of Georgia-Pacific Paper Co.

White Containers, Inc., of Monticello, Iowa, has been acquired for an undisclosed sum and will become a part of the Georgia-Pacific Paper Co.'s container group, operating under the G-P name. White has a capacity of 10 million square feet of corrugated production per month, produced in a 40,000 square-foot plant. The Monticello plant, located 25 miles southwest of Dubuque, serves customers within a 250-mile radius. Mr. Flowerree indicated that the new owners anticipate no personnel or management changes. The operation employs 35 persons.

A new corrugated container plant, similar to the one recently opened by G-P at Olympia, Wash., will be built in northern California at a site yet to be selected. Plans call for a 78,000 square-foot structure with an ultimate capacity of 45 million square feet a month on a three-shift basis. Employment would be created for up to 60 people. Mr. Flowerree said that the company has some posible locations in mind for this plant and will make a decision soon.

The paper company is a subsidiary of Georgia-Pacific Corp., with headquarters in Portland, Ore. It currently operates two paper mills and three container plants in the Pacific coast states.

SPC Acquires Golden Fleece Tissue Mills

Standard Packaging Corp. has acquired the business of the Golden Fleece Tissue Mills, Inc., and its wholly owned subsidiary, Battenville Paper Mills, Inc., R. Carl Chandler, board chairman of Standard, has announced. Harry Preston, founder of the company, Stanley Preston, and Sherman Wiesen, the present executive management group, will continue in active operation of the business as a division of Standard Packaging and it will become a part of the Consumer Products Group of Standard Packaging.

Golden Fleece has as its principal business the making, converting and packaging of high-quality facial tissues at its plants located in Battenville and Greenwich, N.Y. The majority of Golden Fleece's sales consists of boxed facial tissues sold under the private label of well-known retail chains, super markets, and drugstores.

Allied Paper Acquires Gavrin Press

Acquisition of the Arthur J. Gavrin Press, Inc., of New Rochelle, N. Y., and its affiliated companies has been announced by Arnold H. Maremont, chairman of the board of Allied Paper Corp. in Chicago, Ill. The new acquisition has a sales volume approximating $5,000,000. Besides New Rochelle, the acquired organization has plants in Denison, Tex., and Danville, Ky.

The Gavrin Press, advised Mr. Maremont, will be operated as an autonomous division of Allied. Both Arthur J. Gavrin, president, and David Gavrin, executive vice president, will continue to manage operations of the organization.

With the new acquisition, Allied is now among the top four of business forms producers in the country.

Allied made its first purchase of a business forms manufacturing organization in April 1960.

Mead and U.S. Forest Service Sign Forestry Research Pact

The Mead Corp. and the U. S. Forest Service have signed an agreement to conduct research jointly in the management of hardwood timber for the production of pulpwood.

In signing the pact, L. R. Growdon, Mead vice president, pledged his firm to supply the land, share in the financial support, and otherwise cooperate in the project. In return, R. D. Lane, director of the Central States Forest Experiment Station, agreed to assign the scientific personnel and provide the technical facilities necessary to carry on the research project.

"This is a red-letter day for forestry in Ohio," Mr. Lane said, "It's another fine example of the sincere and active interest our wood-using industries are taking in the development of our forest resources. We expect these investigations to benefit not only the pulpwood industry, but the forest land owner, the timber operator, and Ohio's economy in general as well."

The new research program will be conducted on the 700-acre Mead Experimental Forest located in southwestern Ohio. (This is five miles northwest of Lucasville and adjacent to the Molly Lauman Girl Scout Camp.)

Ivan H. Sander, a professional forester experienced in silvicultural research, is being transferred from Berea, Kan., by the Forest Service to head the project. He will be located at Athens, Ohio, where the Forest Service maintains a field research office in connection with Ohio University. Mr. Sander will receive assistance from Mead's land management foresters, George Walters and Robert Nelson.

Answers will be sought to such questions as:

1. How and when do you harvest pulpwood trees so as to assure good forest stand for the future?

2. What steps can be taken to increase the growth rate of pulpwood as well as sawtimber trees?

3. What is the optimum age for harvesting a pulpwood tree?

"Some of these studies will be long-term, scheduled to continue for at least 25 years, while others will reveal useful resources in a very few years," Mr. Lane said.

IPC Research Program Authorizes More Projects

Two more scientific research projects were recently authorized in the Pioneering Research Program of The Institute of Paper Chemistry, Appleton, Wis.

At Yale University in New Haven, Conn., Ellis B. Cowling will receive funds for a three-year study of "Mechanics of Degradation and Nature of Relationships Among High Molecular Constituents of Wood and Wood Fibers." Dr. Cowling is an assistant professor of Forest Pathology in the School of Forestry at Yale University.

At Lawrence College in Appleton, Dr. B. W. Coursen and Dr. R. H. Trumbore will receive funds to finance a two-year study titled "An Exploratory Investigation of Antibiotics and Growth-Stimulating Agents in the Bryophyta (Bry'-o-fighta)."

Six projects are now being financed by the Pioneering Research Program which has support of $125 thousand a year from 24 companies and foundations, and is administered through The Institute of Paper Chemistry.

Brandon To Lecture at Paper Technology Inst.

Prof. C. Edwin Brandon of Oxford, Ohio, director of the pulp and paper course at Miami University, has been named to lecture on paper testing at the Paper Technology Institute at the University of Maine, according to Prof. Lyle C. Jenness, institute director.

A graduate of Defiance College, he holds an M.S. degree from the New York State College of Forestry. During 18 years in industry he has served as a chemist, assistant technical director, and technical director. He has served on many TAPPI Committees and has been chairman of the Pulp Testing and Evaluations Committee. He has been director of paper technology at Miami since 1958.

This is the second year a Pulp and Paper Institute has been held at the University. The present three-week Paper Technology program, in which nearly 70 are enrolled, was preceded by a three-week program in pulp technology in which 22 were registered. They are sponsored by the University of Maine Pulp and Paper Foundation and the University of Maine.

Frederic A. Soderberg of Rensselaer, N.Y., vice president of Huyck Corp. was chairman of the Foundation committee which arranged the program in conjunction with the University. Other members of the committee are: Harold M. Annis, vice president—research, Oxford Paper Co., New York City, and president of TAPPI; William H. Caddoo, vice president of Continental Can Co., New York City; J. H. Heuer, vice president—operations, Great Northern Paper Co., Bangor; W. A. Ketchen, vice president of Fraser Co., Ltd.; Thomas G. Mangan, retired manager of International Paper Co., Chisholm; and George H. Rand, vice president of International Paper Co., New York City.

SFI to Produce Bark Mulch At Snowflake Mill

A bark mulch, first product to come from its newly created Product Development Department, will be produced in quantity shortly, it was announced by J. B. Edens, president, Southwest Forest Industries, in his annual report to stockholders. Equipment for processing tree bark into a mulch for use in lawn care and general agricultural purposes is now being installed at the company's paper and pulp mill in Snowflake Mills, Ariz.

The $32.5 million mill, the keystone of Southwest's expansion program is now in the last stages of construction. The kraft mill, Mr. Edens told the stockholders, will be in operation in November of this year and the newsprint mill is scheduled to start up in December.

Paper and Paperboard Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending July 29, 1961, at 88.6 per cent, compared with 89.6 per cent, revised, for the preceding week. The ratio was 91.6 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending July 29, 1961, at 92 per cent, compared with 91 per cent for the preceding week and 94 per cent for the corresponding week a year ago.

(Detailed Statistics on page 64)

PAPER PEOPLE

J. S. Buchanan

F. R. Mooney

Superintendent Named For Nekoosa Kraft Mill

John S. Buchanan has been named superintendent of the Nekoosa kraft mill of Nekoosa-Edwards Paper Co. He served as acting superintendent since January 1 of this year, and prior to that was technical assistant to the kraft mill superintendent.

Mr. Buchanan joined Nekoosa-Edwards in 1956 and served for several years as a research engineer before assuming duties in the Nekoosa pulp mill. He is a graduate of the University of Wisconsin with an M.S. degree in chemical engineering.

IP Announces Promotions At Camden Mill

Promotions at International Paper Co.'s Camden, Ark., mill have been announced.

Richard Miles, mill superintendent, will be promoted to production superintendent.

H. C. McGough, current power plant superintendent of the company's Pine Bluff mill, will be transferred to Camden as utilities, maintenance and engineering superintendent.

Other promotions announced include: Fred Greenlee, elevated to paper mill superintendent; Jack Russo, advanced to Mr. Greenlee's post as assistant paper mill superintendent; and L. B. Beard, promoted to second assistant paper mill superintendent.

Mooney to Manage Plant for National Gypsum

National Gypsum Co., Buffalo, N. Y., has announced the promotion of Floyd R. Mooney as manager of its Newburgh, N. Y., paper plant.

Mr. Mooney formerly was plant buyer at National's Anniston, Ala., paper plant. He joined National Gypsum in 1948 at the company's Kalamazoo, Mich., paper plant as assistant office manager.

G-P Expands Research Staff at Beaverton

Expansion of the research staff at its Central Research Laboratory in Beaverton, Ore., as part of its research and development program was announced by Georgia-Pacific Corp. Dr. Robert W. Hess, research director, said that two specialists, one a chemical engineer and the other a research engineer, have been selected. They are H. John Ballo and Roland A. Haertl respectively.

Mr. Ballo was born in Hamburg, Germany, and following high school, spent a brief period in Denmark, then moved to England for the period of World War II. In England he attended Ravensfield College, London, the University of London and Willesden Technical College. In 1946 he came to the United States and secured a degree in chemical engineering at the University of Washington. Since then he has held positions with Fibreboard Products, Inc., Antioch, Calif., and Crown Zellerbach Corp. in its testing and inspection department in Camas, Wash., and Western Waxide division in Portland, Ore.

Mr. Haertl was born in Czechoslovakia and went, with his parents, to Germany after World War II. He attended the Technical University of Munich, came to the University of Oregon on a Fulbright Scholarship in 1956 and then returned to the Munich university for his degree.

Engineers Join Staff At Crossett Paper Mills

Two new engineers have joined the staff at Crossett Paper Mills, Crossett, Ark. Edward E. Locke has been employed as a chemical engineer in technical service and Charles R. Zimmerman as a mechanical engineer.

Mr. Locke is a recent graduate of the University of Arkansas. He was a winner of a Crossett Co. scholarship to the University in 1957. Before coming to Crossett, Mr. Zimmerman was a liaison engineer with Convair Aircraft Corp. He received BSME and MSAE degrees at the University of Arkansas.

Warren Announces Changes In N.E. Sales Staff

Robert S. Elliott has retired as New England district sales manager for S. D. Warren Co. Eliot B. Payson, who has been associated with Mr. Elliott for several years, will continue his activities in the New England area. Prior to assuming his New England duties Mr. Payson had wide experience in Warren's New York and Detroit offices. Lewis H. Brown will move from Rochester, N.Y. to Boston, where he and Mr. Payson will team to serve the New England market.

Champion Advances Three In Ohio Division

Champion Papers, Inc., Hamilton, Ohio, has promoted Robert O. Stephenson to assistant Ohio Division manager. William E. Larson has been appointed as acting production manager, and Perry W. Bartsch has been named as acting manager of finishing departments.

In his new assignment, Mr. Stephenson will directly assist Mr. Jones in all phases of Champion's Ohio Division operations. Mr. Larson will now be responsible for all production at the Hamilton plant. Mr. Bartsch will head all finishing operations at the Ohio Division as well as continue his present assignments for the firm's general office.

Champion Firm Names Treasurer

Directors of Champion Papers, Inc., Hamilton, Ohio, has elected Clarke Adams, secretary-treasurer of Carpenter Paper Co., Omaha, as treasurer of Champion.

Mr. Adams joined the Kansas City (Mo.) branch of Carpenter in 1939, became treasurer in 1948 and was named secretary-treasurer in 1950. He will move to Hamilton to assume his new duties with the parent firm.

R. H. Finlay, Jr.

Georgia-Pacific Names Midwest Sales Manager

Raymond H. Finlay, Jr., has been named Midwest sales manager for the rapidly expanding Georgia-Pacific Paper Co. Mr. Finlay brings to the company a diverse experience in paper sales, gained over a 12-year period with Union Bag-Camp Paper Corp., most of it in the Midwest. He has most recently been sales manager for Union Bag's standard products and has held positions in the chain store and flexible packaging divisions in addition to general experience.

PIMA Pacific Coast Div. Awards Scholarships

The Pacific Coast Division of Paper Industry Management Assn., recently announced the awarding of three, one-year, full-tuition scholarships to universities within the division area.

Recipients of the scholarships and the universities they will attend are:

Timothy J. Rahman, Bremerton, Wash., University of Washington, Seattle, Wash.

Darold W. Callahan, Roseberg, Ore., Oregon State University, Corvallis, Wash.

John P. Bordusco, Vancouver, B.C., Canada, University of British Columbia, Vancouver, B.C., Canada.

With the awarding of these scholarships, the Pacific Coast Division has implemented its December 1960 decision to place its annual scholarship program on a continuing basis to defray the tuition expense of students studying for paper industry careers.

Great Northern Official To Retire from Board

The Great Northern Paper Co. has announced the retirement of A. R. Caspar, vice president—marketing, a member of the board of directors and of the executive committee of the company.

Mr. Caspar has been associated with the Great Northern Paper Company for 42 years.

A native of Lisbon Falls, Mr. Caspar joined the company in 1919 as a member of the Bureau of Tests in Millinocket. He was later transferred to the company's headquarters in Boston, as assistant manager of manufacture.

In 1935 he moved to New York as manager of sales. He became a director of the company and a member of the executive committee in 1950.

I-P Promotes Three At Moss Point Mill

Maurice E. Hulbert, first assistant pulp mill superintendent at the Moss Point Mill of International Paper Co. has been promoted to pulp mill superintendent. Mr. Hulbert will replace Virgil F. Crabtree, who has been promoted to production superintendent of the company's Natchez, Miss., mill.

Also announced were the following promotions: Ellis O. White, second assistant pulp mill superintendent, to first assistant; Billy Wade Smith, assistant to the pulp mill superintendent, to second assistant in this department.

Coleman Joins Union Bag As P-R Assistant

Ronald L. Coleman, public relations director of the Central of Georgia Railway, will become a staff assistant in public relations for the Union Bag-Camp Paper Corp.

W. Kirk Sutlive, director of public relations for the paper company, said Mr. Coleman will succeed William W. McClure as editor of the firm's magazine, The Digester. Mr. McClure has accepted the editorship of the Cullman (Ala.) Times-Democrat, a new daily newspaper.

C. H. Dexter Promotes Three

Three promotions at C. H. Dexter & Sons, Windsor Locks, have been announced.

Mrs. Jean C. Sterling was elected vice-president — finance and secretary-treasurer; Allan Q. Johnston was named vice-president — marketing; and Richard C. Blackburn was advanced to assistant secretary and assistant treasurer. Mr. Blackburn will continue as controller.

William Gilyard

Hudson P&P Names Asst. Supt. at Palatka

Hudson Pulp and Paper Co. has promoted William Gilyard to assistant superintendent for the tissue paper machine department at Hudson's Palatka mill.

Mr. Gilyard joined Hudson in 1956 as a tour foreman in the tissue paper machine department. A veteran of over 25 years in the paper industry, Mr. Gilyard was with the Water Falls Tissue Co. prior to joining Hudson.

Allied Paper Announces Managerial Promotions

The Allied Paper Corp., Chicago, Ill., has announced the promotion of U. G. Stoeffler to the position of process development manager, and the appointment of John D. Nisbet to the position of general sales manager.

Mr. Stoeffler will be primarily responsible for the development of manufacturing processes for the book paper mill divisions of the company, reporting directly to the vice president for research and development.

As general sales manager, Mr. Nisbet will supervise and coordinate the overall sales activities for the company's paper mill divisions in Kalamazoo, Mich. An Allied employe since 1936, Mr. Nisbet previously

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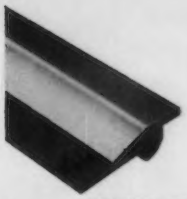
for continuously effective, economical operation of all papermaking rolls

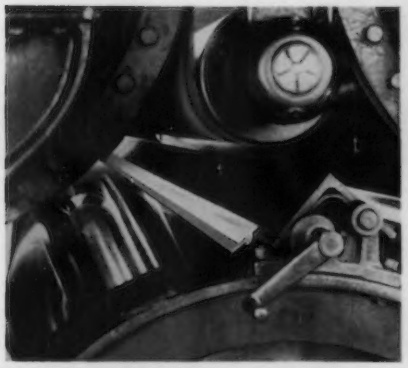
1. Use Vickery Doctors specifically designed and engineered for each roll type, size, composition and service.
2. Have the Doctors installed by Bird expert application engineers.
3. Replace worn blades with *genuine Vickery Doctor blades* specially selected and fitted for the specific application.



VICKERY RS DOCTORS

VICKERY HI-ANGLE DOCTORS

VICKERY HI-FLEX DOCTORS



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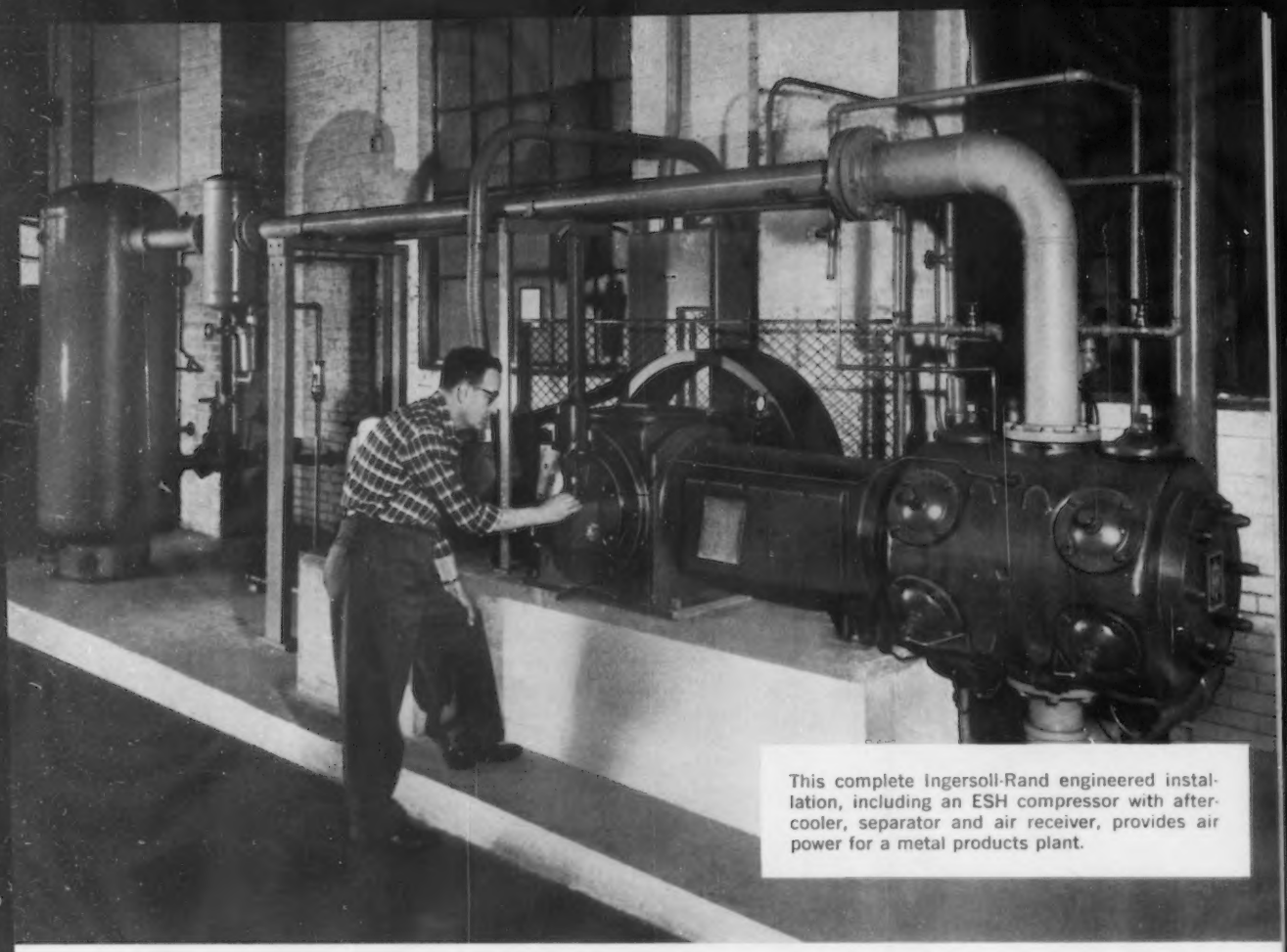

This complete Ingersoll-Rand engineered installation, including an ESH compressor with aftercooler, separator and air receiver, provides air power for a metal products plant.

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TIME TELLS THE DIFFERENCE

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"No bearing wear in 60,000 hours"..."43,680 hours with no valve maintenance required"..."63,648 hours with no forced maintenance"..."13 years without even *cleaning* the valves". That's what our customers have been telling us, and there are many more true case histories like them which prove the *long-range economy* of Ingersoll-Rand compressors.

The *extra value* that's built into every type of Ingersoll-Rand compressor pays off with reduced maintenance and attention over many years of operation, and the result is big savings in the cost of your air power. Ingersoll-Rand offers also the *most complete* line of compressors, in reciprocating, centrifugal, axial-flow, rotary and thermal types. There are units from ½ to 25,000 hp, for pressures from one micron to 125,000 psi. Call your I-R man today for help on your job.

ESH 20 to 150 hp

PHE 75 and 100 hp

XLE 125 to 350 hp

PRE 400 to 2000 hp

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Only
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air compressors
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EXTRA VALUE
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AIR-CUSHIONED CHANNEL VALVES
Known for high efficiency, quiet operation and exceptional durability. Entirely different. Each valve is a combination of rigid stainless-steel channels and bowed leaf springs, with trapped-air spaces which cushion action, prevent impact. Separate stainless-steel seat plate may be turned over or replaced for new life.

FULL-FLOATING ALUMINUM BEARINGS
Never need fitting or adjustment. They "roll with the punch" of each stroke, to distribute the load evenly over inside and outside surfaces.

FULL FILTERED PRESSURE LUBRICATION
Filtered oil under pressure to all bearing surfaces cuts wear to minimum.

SEALED FRAME
Keeps out dust and dirt, the major cause of wear. Keeps oil in.

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held the positions of director of production scheduling, Midwestern sales manager, and immediately prior to his present promotion the position of assistant general sales manager.

U.M. Pulp & Paper Foundation Elects Officers

J. Larcom Ober of Salem, Mass., vice president (retired) of Scott Paper Co., was elected chairman of the board, and Frederic A. Soderberg, vice president of Huyck Corp., Rensselaer, N.Y., was chosen president of the University of Maine Pulp and Paper Foundation at the annual meeting of that organization.

Manuel C. McDonald of Bangor, president of Great Northern Paper Co., and Ralph H. Cutting of Waterville, president of Keyes Fibre Co., were named vice presidents. Ralph A. Wilkins of East Walpole, Mass., president of Bird & Son, Inc., and Henry W. Fales, vice president of St. Croix Paper Co. of Woodland, were re-elected treasurer and secretary of the non-profit corporation.

Lewis Calder, Jr., of New York City, executive vice president of Kennebec Pulp and Paper Co.; Eugene H. Clapp of Boston, Mass., president of Penobscot Chemical Fibre Co.; Alvah Crocker of Fitchburg, Mass., president of Crocker Burbank & Co.; Harry C. Moore of Beloit, Wis., president of the Beloit Iron Works; and David W. Stapleton of Newton Upper Falls, president of Stowe-Woodward, Inc., were elected directors at large for three-year terms.

Other directors at large whose terms expire later are: Frederick S. Crysler, vice president of Container Corp. of America; Philip H. Glatfelter III, president of P. H. Glatfelter Co.; Stuart E. Kay, vice president of International Paper Co.; George Olmsted, Jr., president of S. D. Warren Co.; Ira D. Wallach, president of Gottesman & Co., Inc.; William H. Caddoo, vice president of Continental Can Co., Inc.; Paul E. Hodgdon, chairman of Deerfield Glassine Co.; Curtis M. Hutchins, president of St. Croix Paper Co.; Walter C. Shorter, vice president of Union Bag-Camp Paper Corp.; and Peter T. Sinclair, executive vice president of Crown Zellerbach Corp.

Ex-officio directors are William H. Chisholm of New York City, president of Oxford Paper Co., and a trustee of the University of Maine; Dr. Lloyd H. Elliott, president of the University of Maine; and Dean S. Evans, dean of the College of Technology at the University.

C. D. Dickey, Jr.

Scott Fills Newly Created Vice Presidency

Scott Paper Co.'s board of directors has elected Charles D. Dickey, Jr., a vice president of the corporation. In a newly created position, he will have executive responsibility for treasury and corporate purchasing functions and will report to the administrative vice president, who is one of Scott's three-man executive committee.

Mr. Dickey has been on loan from Scott, since 1957, to British Columbia Forest Products, Ltd., where he served as president. B.C.F.P. is a leading pulp, lumber and plywood producer, with headquarters in Vancouver, B. C., in which Scott has had a substantial minority interest since 1955, either directly or through an affiliate. Mr. Dickey accepted the presidency of B.C.F.P. at the specific request of the Canadian company's board of directors.

The recent selection of T. N. Beaupre, former president of Columbia Cellulose Co., Ltd., as president of B.C.F.P. cleared the way for Mr. Dickey to continue his career with Scott.

Fox River Promotes Rickert and Romenesko

Fox River Paper Corp., Appleton, Wis., has announced the appointment of Roy Rickert as comptroller, with supervision of all accounting and cost accounting operations and allied activities.

Mr. Rickert's new position will be in addition to his duties as manager of Customark Corp., a Fox River subsidiary.

Gerald Romenesko has been oppointed manager, order department, with responsibility for all order department operation, scheduling, maintenance of inventory levels, and forecasts of raw material requirements. He joined Fox River in 1952 as an accountant.

PTJ NEWS OF CONVERTERS

Lily-Tulip to Build Plant in New Jersey

The Lily-Tulip Cup Corp. will start immediate construction of a new 900,000-square-foot plant at Holmdel, N. J., Walter J. Bergman, chairman of the board and president, has announced.

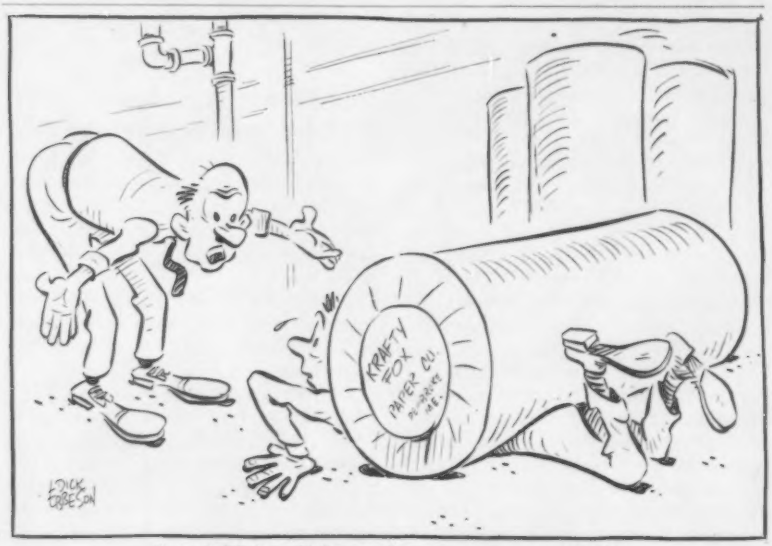
The New Jersey plant, which will employ approximately 1,200 persons, will replace the company's College Point, N. Y., plant and associated Bronx warehouse. Mr. Bergman pointed out that a modern single-floor layout permits far more efficient operation of the equipment used in the manufacture of paper cups and containers. Much of the machinery and equipment now installed at the College Point facility will not be moved since new machinery is under construction.

Construction of the Holmdel plant, which is expected to be in partial operation within 18 months, completes the cycle of post-war modernization of all major Lily-Tulip manufacturing facilities. A new plant was erected in Augusta, Ga., in 1947; in Toronto, Canada, in 1950; in Springfield, Mo., in 1952; in Riverside, Calif., in 1958. Each is equipped with the latest machinery, designed by the company's engineering staff. The company's new Technical Center in Commack, N. Y., was opened in the fall of 1960. In addition, Lily-Tulip has a plastic-converting plant in Hawthorne, N. J., a pulp-molding plant in Old Town, Me., and in partnership with the International Paper Co. owns a 250-ton-a-day bleached board mill in Louisiana.

The new location in Holmdel Township is situated midway between the Amboys and Red Bank and is an hour's trucking distance from New York. The plant will be fully air-conditioned for employe comfort and production efficiency and will be operated on a round-the-clock basis. In-plant feeding service will be provided.

An underground tunnel system, which will honeycomb the entire production area, will house some 14 different service lines, including all fuel, steam, gas, liquid paraffin, power and similar supply lines. These will be piped to the individual machines through the floor. The tunnels will measure some nine feet high and up to 14 feet wide.

The plant will be erected on a site of over 100 acres, leaving ample space for future expansion. The annual payroll is expected to be well in excess of $5,000,000.



"I can't lift it—which way do you want me to roll it?"

Hoerner, Jr. Named To BDSA Post

Richard N. Hoerner, Jr., marketing planning manager of Hoerner Boxes, Inc., Keokuk, Iowa, has received a six-month assignment as an assistant director for mobilization planning, Containers and Packaging Division, Business and Defense Services Administration, U. S. Department of Commerce, Washington, D. C.

Mr. Hoerner joined BDSA August 1 under an arangement by which industry makes the services of key officials available for temporary duty with the Government, without compensation. The asignment also qualifies him for membership in the National Defense Executive Reserve which would staff the operation of a production agency in event of national emergency.

W. F. DeLancey

Southern Bag Names DeLancey Gen. Manager

Southern Bag Corp. has announced the appointment of Wilburn F. DeLancey as general manager.

Mr. DeLancey was formerly assistant general manager of First Packaging Corp. and prior to that was connected with the Packaging Division of Olin Mathieson Chemical Corp.

Southern Bag manufactures all types of multiwall shipping sacks and has plants located at Yazoo City, Miss.

Bemis Bag Names Product Development Manager

Russell W. Hauck has been named product development manager for the paper specialty plants of the Bemis Bro. Bag Co.

Mr. Hauck, who has served as a factory representative for the past three years, will be responsible for product and new use development.

KP-140

(TRI-BUTOXYETHYL PHOSPHATE)

foam killer boosts paper quality

Foam carries dirt and grime onto paper surfaces during the coating process . . . causes specks, dry spots, pitting. To prevent such defects, major paper manufacturers are using KP-140 in their coating formulas. This efficient FMC defoamer promotes blemish-free appearance and uniform strength in papers. It leaves no odor or other residues and is economical, providing excellent foam suppression at low cost.

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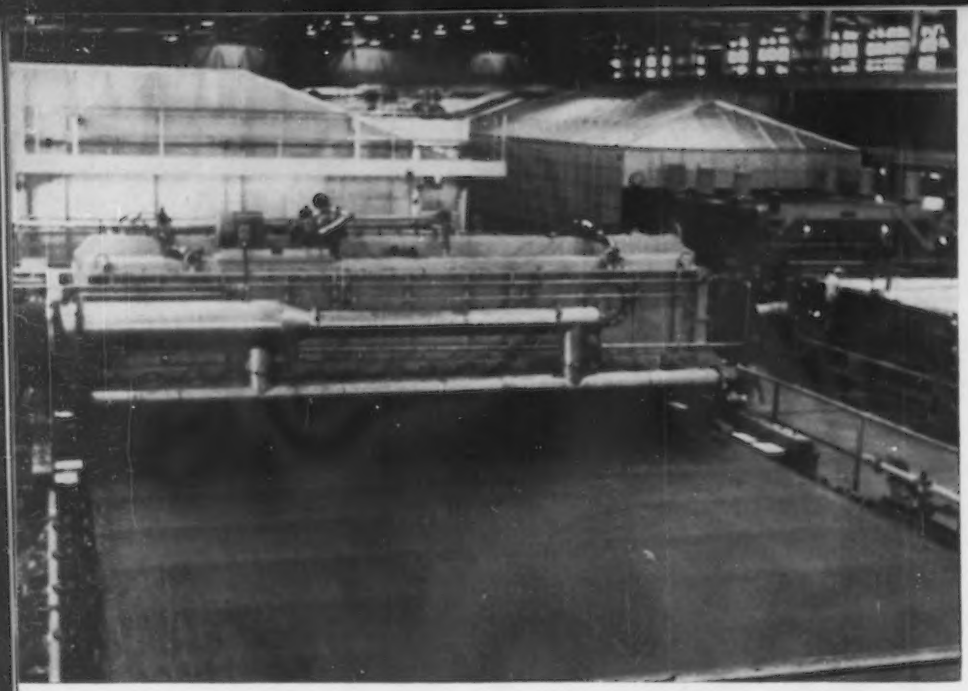
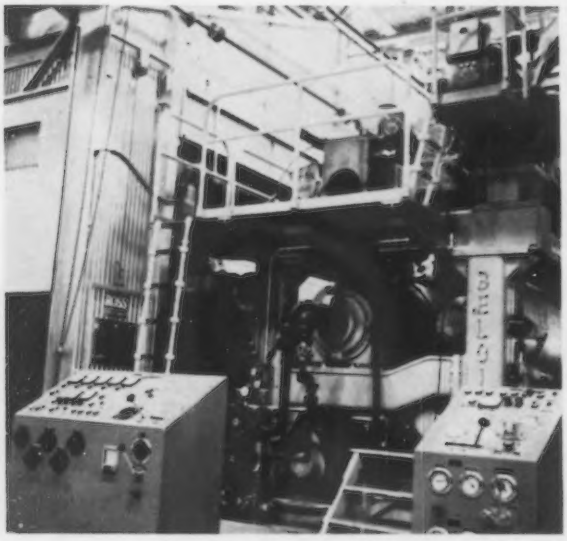


Western Stars' wet end (looking towards secondary headbox) overshadows No. 1 machine in rear.

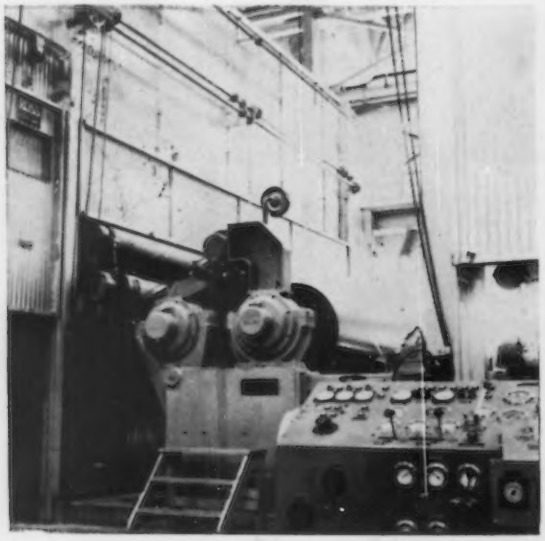
St. Regis Observes Opening of New Facilities at Tacoma Kraft Center

Star attractions at the very recent ceremonies marking the completion of a $30 million expansion and modernization project were the new paper and paperboard machine and the giant continuous digester. Here is what the 1,200 open-house guests saw . . .

Clu-Pak unit, for the production of "stretchable" papers, makes "Western Star" a versatile machine.



Horizontal size press is located between fourth and fifth dryer sections.



A new star has risen in the Pacific Northwest—and by this we mean the "Western Star," St. Regis' new 400 t.p.d. linerboard machine at the Tacoma kraft center. This new machine and the paper machine already in operation have a combined rated capacity of 630 t.p.d. of bleached and unbleached "Starliner" board, and kraft papers grades. The new machine is also equipped to produce extensible kraft papers.

Two years under construction, the $30 million expansion and modernization of the kraft center facilities marked one of the Pacific Northwests' largest private capital investments in the last ten years. Flexibility of operation was the keynote, both in the new facilities and modernized facilities, to meet sales requirements. In addition to the new board machine, these other projects played a vital part in the expansion:

- Installation of one of the world's largest continuous digesters to nearly double pulp production from 400 to 725 t.p.d.
- Rehabilitation of bleaching, washing and screening facilities.
- Installation of new recovery and power boilers, including additional water treating facilities, evaporator capacity, lime kiln and recausticizing equipment.
- Provision for outside chip storage, with four pneumatic handling systems, and augmentation of existing woodroom facilities to handle eight-foot pulpwood.
- Completely new and modern roll finishing, storage, and shipping facilities.

W. R. Haselton
Resident General Manager

J. M. Lamb
Retired General Manager

In keeping with the dynamic pattern of growth in the northwest, the Tacoma Kraft Center has steadily increased its ability to serve as a major supplier to St. Regis customers. The company's operations are completely integrated from forest to finished product. Wood goes to St. Regis sawmills and plywood plants, or is converted into high-grade west coast bleached kraft pulp, paper and board which may be converted into bags or boxes.

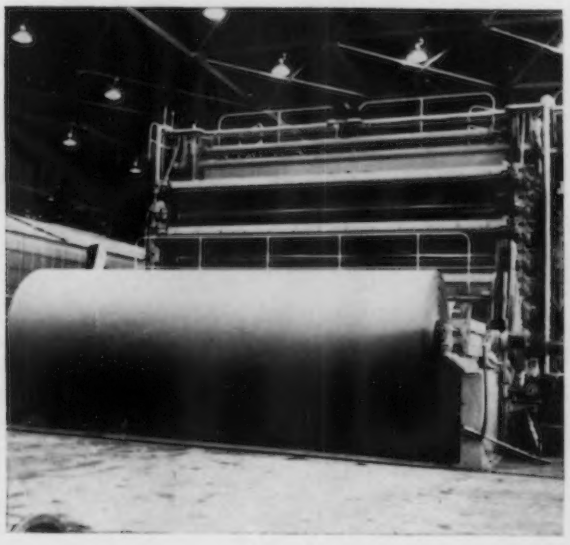
St. Regis became a corporate citizen in the city of Tacoma in May 1930 when it purchased the then new pulp mill of Union Bag Paper Corp. At that time the little kraft mill at the mouth of the Puyallup River manufactured about 200 tons of pulp per day. In 1936, St. Regis put into operation one of the world's first continuous kraft bleach plants, which is now one of the oldest continuous operations at the mill.

Pulp production was continually increased, and in 1941, two 126 inch wide fourdrinier machines and Flakt dryers replaced two wet machines. Pulp production reached 300, then 400 t.p.d. In 1949, No. 1 paper machine, 182 inches wide, went into operation producing about 230 t.p.d. of multiwall bag paper, and bleached and unbleached kraft specialties and board.

In 1953, a multiwall bag plant with a capacity of 250,000 bags per day complete with bag engraving and printing facilities was built and in 1960 a corrugated container plant was added.

Construction of the container plant was correlated closely with the kraft mill project to permit full advantage of the added production of linerboard. The corrugating machine has an hourly capacity of 75,000 sq. ft. board at speeds up to 300 f.p.m., and in widths up to 64 inches. A waxer, printer slotter, and semi-automatic taper have also been in-

Heavy-duty reel carries 48 inch diameter drum and 20 inch diameter spool.



Two-drum rewinder slits 96 inch diameter rolls from reel at 4000 f.p.m.

stalled. At capacity, the plant can manufacture 30,000 boxes during an eight hour shift.

Two other St. Regis Divisions operate out of the Tacoma complex. They are the St. Paul and Tacoma Lumber Co. sawmill and plywood mill (at nearby Olympia) as well as Northwest Door Co. which manufactures plywood, and house and specialty doors.

Heading up St. Regis operations at Tacoma is resident general manager, **William R. Haselton.** Dr. Haselton succeeds **J. M. Lamb,** former g.m. who retired this summer after 33 years service with St. Regis. Manufacturing superintendent at the Tacoma kraft mill is **Robert F. Lynch.** His technical superintendent is **H. T. Randles.** Superintendent of the paper mill is **Sydney Dolan. M. C. Bradley** supervises the pulp mill operations. St. Regis' own engineers accomplished most of designing and supervision of the expansion program under project engineer **Robert P. Kollmeyer,** of the Central Engineering Dept. Consulting engineering service was provided by Walter S. Gordon and Rubens and Pratt. Erection of the recovery and power boilers was done by C. C. Moore and Industrial Service & Engineering.

New buildings, where required, and particularly the machine room, are generally constructed of corrugated transite siding over a structural steel frame. Roofs are made of pre-cast concrete. Foundations are constructed of reinforced concrete set on piling. Other construction also includes a new mill office building for administrative, operating and engineering personnel, as well as a new storeroom addition containing 7425 sq. ft. floor space.

Versatile Machine Makes Paper or Board

The left hand removable fourdrinier board machine is designed to produce various grades of bleached and unbleached linerboard and paper grades at speeds up to 2000 f.p.m. Wire width is 262 inches and its length is nearly 153 feet.

The stainless steel-lined primary headbox receives stock from six 46-inch Magna-Cleaners which are equipped with automatic dump and flushing valves. Recirculating, pressure and differential flow control system regulate stock flow to the headbox. The primary fan pump is a 36,000 g.p.m. ACAP model directly connected to a 1000 h.p. synchronous motor. A stuff box regulates the consistency of the stock between the machine chest and fan pump.

The flow system for the secondary sheet is similar but includes a 12,000 g.p.m. fan pump directly driven by a 400 h.p. motor, three 36-inch Magna-Cleaners, control systems and air-loaded headbox.

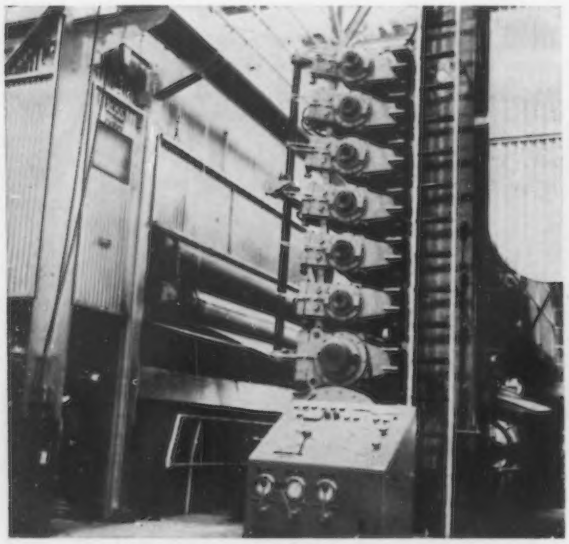
Major components in the fourdrinier section include: Stainless steel forming board containing Panelyte blades and mountings; 38-inch dia, breast roll covered with fiberglass; four 14¾-inch dia. aluminum body, fiberglass-covered grooved table rolls; eighteen 14½-inch dia. plain table rolls of similar composition; Panelyte-tipped deflectors; four suction boxes with Panelyte-teflon covers; dandy roll; rotary suction box unit (Beloit's Flo-Vac) equipped with a specially-designed rubber belt; 44-inch dia. bronze couch roll; lump breaker roll; 38-inch dia. wire turning roll; and three wire return rolls.

White water is recovered and recirculated in the customary manner in the tile lined flat box seal pit, agitated couch pit, and wire pit. Excess air is released from the white water with wire pit by providing a stilling effect on the tray water.

Two straight-through suction presses follow the fourdrinier. For each press, the rubber-covered top roll is 38 inches in diameter and the rubber covered bottom roll is 44 inches in diameter. Each press felt is provided with a Vickery felt conditioner.

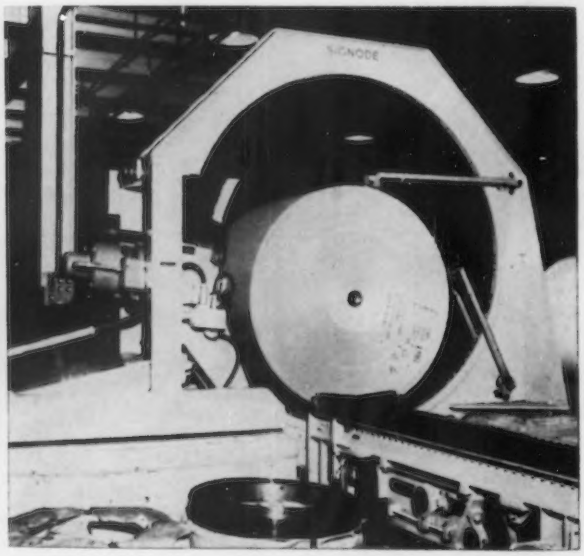
Vacuum for the presses, flat boxes, and rotary suction belt unit is supplied by three tandem banks of pumps. Each group is driven by a 600 h.p., 900 r.p.m. synchronous motor.

Following the first dryer section composed of ten 60-inch dia., 264 inch face dryers, and two felt dryers, is a smoothing press. Its microrok



King roll on calender stock weighs approximately 56 tons. Three-roll after-dryer section separates 2 similar stacks.

Finished rolls are banded in this automatic strapper as they are conveyed to the warehouse.



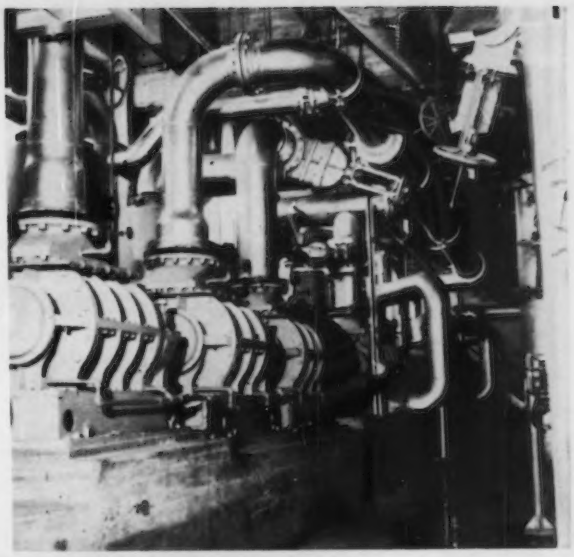
bottom roll is 38 inches in diameter, the 38 inch dia. top roll is rubber covered. The dryer section following the smoothing press is composed of 14 dryer rolls, two felt dryers and two Feeny dryers. The third dryer section is similarly arranged.

Between these two sections is installed a Beloit D2-11 extensible paper unit, complete with all the necessary auxiliary components. The main chrome-plated dryer roll is 48 in. in dia. The inclusion of this unit in the "Western Star" permits the production of Clu-Pak stretchable paper, useful in multiwall bags.

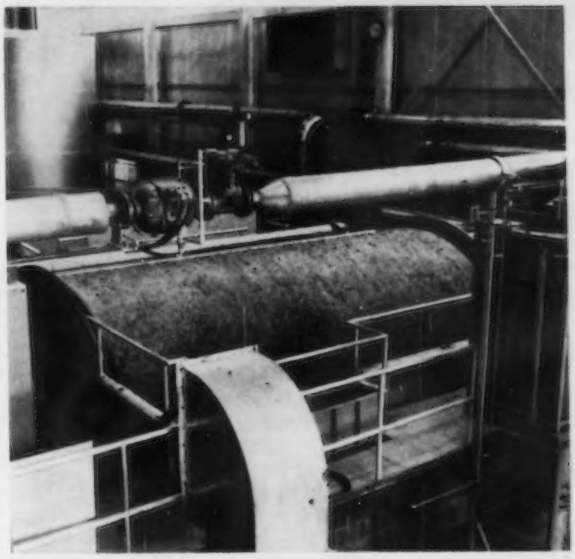
The fourth section contains eight 60-inch dryers and two felt dryers, while the fifth, and last dryer sectin has 12 dryer rolls and two felt dryers. Between these two sections is installed a horizonal size press.

Each dryer operates on 125 p.s.i. steam and each is equipped with a high speed stainless steel condensate remover, duplex steam fit, and flexble joints. The first bottom and last top dryer of each of the five section contains an oscillating doctor. In addition, the top first dryer in the fifth section has one.

Dryer bearings and gears are completely enclosed and lubricated through oil-sight feeds. The oil circulating system contains a roll-type filter, tanks, pumps and a low pressure blower (to maintain pressure in the oil tanks and gear enclosures). A dryer condensate and non-condensible vapor removal system has been installed so that independent control of each dryer section can be exercised.



Three tandem banks of vacuum pumps like the one shown here, provide suction for flat boxes and presses.



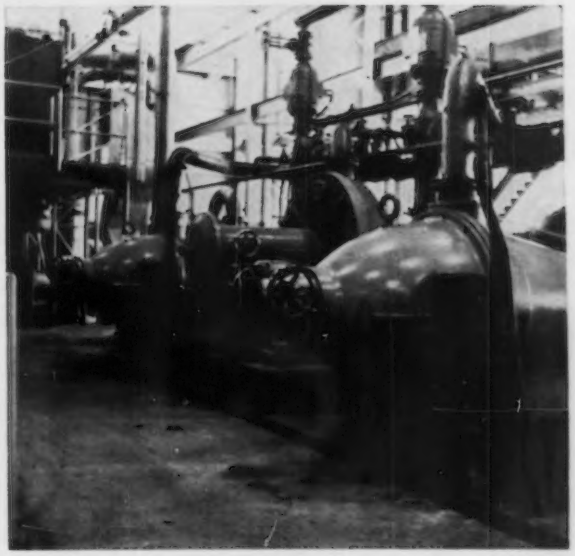
Decker in the primary stock system doubles as a primary saveall.

Two High-Velocity Dryers

Beloit Air-Cap high velocity dryers have been installed under dryer 25 and over dryer 26 in the third dryer section. The top unit is a sectional model to assist in evening moisture profile across the sheet. Both units are gas-fired and each contain their own temperature controls, circulating and exhaust fans.

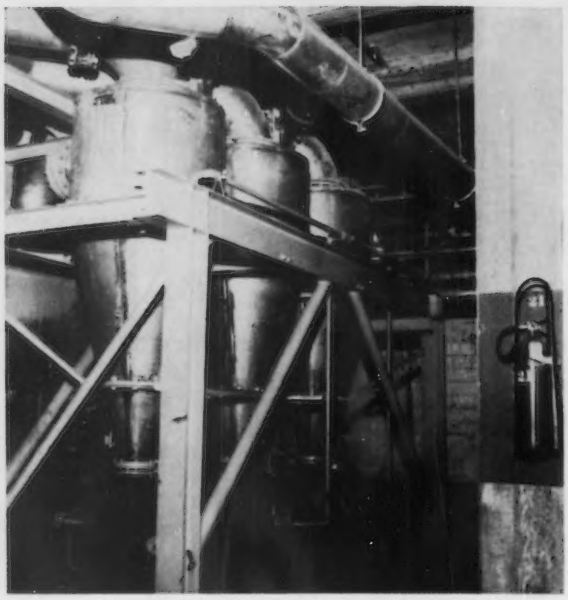
There are two 8-roll open side calender stacks separated by a three 60-inch dryer roll section. The stacks' kings rolls are 40 inches in diameter; the queen rolls are 24 inches, and the six intermediate rolls are each 18 inches in diameter. The calender stacks are provided with a separate oil circulating and lubricating system. Rolls up to 96 inches in diameter can be handled by the heavy duty reel.

Set behind the real is a two-drum rewinder. Rolls are carried from the reel by a 27 ton capacity semi-gantry crane. The 5000 f.p.m. re-



Majestic jordans and one of two Claflin refiners in the top-liner stock system.

Stock preparation control panel serves as backdrop for primary decker.



Magna cleaners of this type first treat the stock on the way to either of the headboxes.

winder is equipped with tension controls both on the unwinded stand and winder shafts, roll ejector, shaft puller, and roll handling equipment.

Prime mover for the line shaft drive is a 2200 h.p. multivalve, geared non-condensing steam turbine operating on 400 p.s.i. 725° F steam and exhausting at 180 pounds. Unique in the turbine's governor system is the inclusion of a transistorized governor in addition to the customary oil governor. Termed by Westinghouse the "DACA" governor, it is reported to hold the speed of the turbine to within ±0.1 per cent over an operating range of 200 to 2000 f.p.m. If either governor system fails the other assumes control. St. Regis is one of the very first to make use of this type of governor, says Westinghouse.

Fourteen Drive Units

Line shaft speed is 1000 f.p.m. for a machine speed of 2000 f.p.m. Differential gear units are provided for the wire turning roll, first and second presses, smoothing press, extensible unit, size press, five dryer sections, two calenders and reels. In addition, variable-speed helper drives are provided for the couch roll, dandy roll, lump breaks roll, two wire return rolls, and for the top rolls on the suction, smoothing and size presses. The calender dryers are driven by belts from the second calender stack drive system.

Ross-Hooper totally enclosed hoods constructed of insulated and corrugated aluminum panels are installed over the first dryer section, second and third sections; the extensible unit; and the fourth fifth dryer section including the size press. The calender dryers contain a separate open-type hood. The lower sections on the operating floor may be opened either manually or automatically.

There are five exhaust fans. Other air supply and ventilating equipment furnished include: Ross-Grewin units, calender cooling system, winder trim conveyors, two make-up air systems, man cooling units, slitter dust removal system, broke pulper exhaust system, bottom felt supply units and fourdrinier exhaust system.

A full machine-width broke pulper is located under the last dryer of the machine. The sheet from either the last dryer, calender stacks or reel will dump directly into the tile vat. An inclined conveyor feeds broke collected from the fifth dryer section into the pulper. Repulped broke is pumped through a consistency regulator to a broke storage chest, prior to entry into the stock preparation system.

Also located in the basement under the machine is a starch-cooking and size distribution system. The package cooker can be operated either batch wise or continuously at a capacity of 750 lbs. per hour. Cooked starch is held at temperature in two 12-foot agitated tile chests. Metering systems then distribute size to the wet end, size press, and calender stack.

The existing paper machine building was extended in width and length to accommodate the new machine and stock preparation area, which now makes the building 135 feet wide and 630 feet long. After erection of the new addition was completed, roof trusses transferred the load off of the previous outside wall, the building columns were removed so that existing machine tending aisle is now common for both machines. The old building siding was reused on the new wall.

Modern Roll Finishing

A total area of 42,000 sq. ft. of floor area, all under cover was provided for roll finishing, handling, storage and shipping. This system will not be described in great detail here since PAPER TRADE JOURNAL will publish a separate article on this aspect of the St. Regis expansion in the very near future.

The new facilities have been installed to process the old machines' production as well as the new machines'. They consist principally of automatic sorting, weighing, conveying, banding, wrapping and upending equipment, together with a Langston rewinder. The storage area under cover includes rail and truck loading docks. Finished rolls are handled by lift trucks equipped with side grabs to rail cars, trailer vans, or to storage. The entire system is automated to the point consistent with the flexibility built into the en-

tire mill. It is designed for handling rolls up to 10,000 lbs. and 72-inches diameter. The wrapping line, however, will handle 60 inch dia., 96 inch wide rolls.

The new machine was provided with a complete stock preparation system separate from No. 1 machines. Some new equipment was installed on No. 1's system to permit the release the return of large existing stock chest which were being used for No. 2 machine system. This new equipment included two 18½ foot dia. x 21 foot high refiner stock chests. Each chest is agitated by vertical, top entering three bladed agitator, 7 ft. in diameter.

In No. 2 stock preparation separate systems are employed for the primary and top liner stock. Stock is pumped from high density storage in the pulp mill area to a 11½ ft. by 20 ft. decker which are employed in No. 2 stock preparation to serve the dual purpose of a primary saveall and thickener for primary stock. Installed in a tile vat the saveall is equipped with a stainless steel headbox. The stock is then consistency regulated before going into the primary stock chest. For the secondary system a 6½ by 10 decker, equipped with tile vat, repulper and consistency-regulated discharge was provided.

From storage, stock is passed through magnetic separators, then into the refining systems. Operators are provided with full control of the refining operation through magnetic flow meters, recording Kw. meters, and remote bench controls.

Primary Disk Refiners

Primary stock is refined in four 42-inch double disk refiners connected in series. Each is driven by a 700 h.p. 450 r.p.m. synchronous motor. Refined stock passes into an existing machine chest.

Secondary stock is first refined in two majestic jordans, driven by 500 h.p. motors, followed by two 303 Claflin refiners driven by 450 h.p. motors. A new tile lined 6-ton capacity machine chest retains the stock before it eventually is pumped into the secondary headbox system.

The stock preparation area also contains a two compartmented white water chest installed under the deckers. One section of 261,500 gal. capacity retains white water from the primary stock system. The other of 17,250 gal. capacity holds white water from the secondary stock thickener. Excess white water from the chest is utilized in the kraft pulp mill. The majority of stock and white water piping in this area is fabricated of stainless steel.

Also contained in this area are a starch size emulsifying system, wet strength additive system, alum, and slime control additive systems. These chemicals are proportioned to the stock flow from the additive control panel located on the operating floor of the stock preparation area.

As it was previously noted, about 200 t.p.d. of pulp production is dried on combination fourdrinier and Flakt drying machines. This production may be sold as market pulp or it may be used to provide surge capacity. To provide further flexibility to the entire mill, a Morden 34-inch pulper was installed. Pulp is transferred into the pulper over a roller conveyor and hoist, repulped stock, at four per cent consistency is pumped to either low-density storage, bleach high density storage or directly to the stock preparation area.

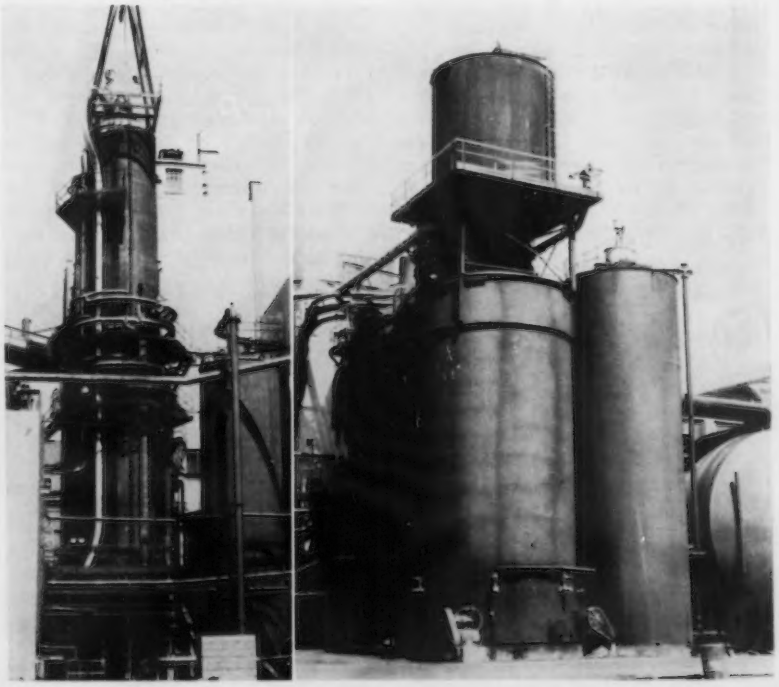
Continuous Digester Nearly Doubles Output

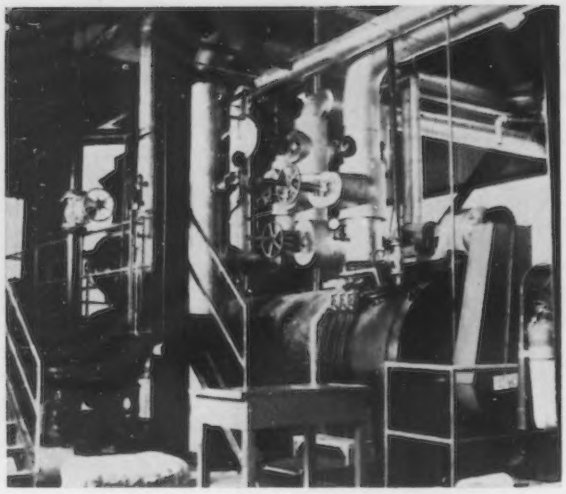
The Kamyr continuous digester has a rated capacity of 325 t.p.d.—more than the capacity of five of the seven existing batch digesters—and is one of the largest units with a single feeding scheme. The new system has its own laboratory equipment for testing the pulp and an automatic control panel at which one man operates the entire process. The digester vessel is located outside while the steaming vessel, feeders, and other auxiliary equipment are situated in an adjacent building.

The digester proper is 101 feet high with an inner diameter of 13 feet. Materials of construction consist of stainless steel cladding for the top and bottom cones and the liquor extraction zone, and carbon steel for the remaining portions of the vessel.

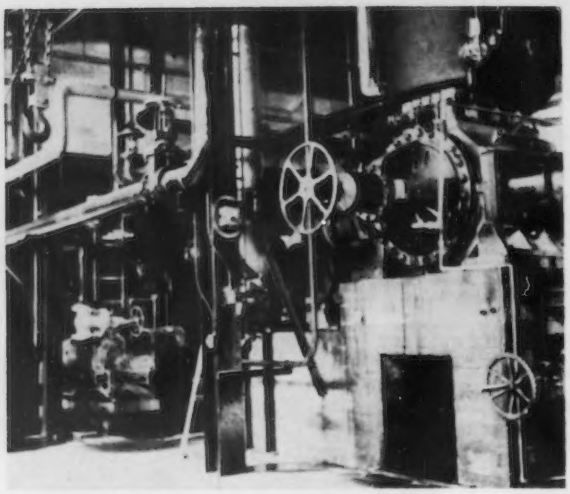
Chips are pneumatically conveyed from a silo to a smaller bin with 20 minutes capacity, located on the roof of the digester building. Chips are then volumetrically metered through the low pressure feeder into the steaming vessel where chips are presteamed at 15 p.s.i.g. Said steam is obtained from No. 1 flash tank and liquor heater condensate, with live steam available if needed. Steam and other gasses bled off from the vessel so to a spiral condensor which provides hot water for the brown stock

View of the new continuous kraft digester, and blow, flash and liquor tanks. Digester controls, chip feeders, and steaming vessel are located in separate building partially shown at left.





The feeding system to the new digester includes the steaming vessel where chips are pre-treated with 15 psi steam.



High-pressure feeder receives chips from steaming vessels and feeds into digesters at 165 p.s.i.

washers. The chips are discharged from the steaming vessel by a screw into a high pressure feeder whose rotor is totally submerged in liquor. The chips are packed into the feeder by the chip chute circulation pump and then pumped to the top of the digester and through the top separator consisting of a slotted cylindrical strainer with a cleaning screw. The top separator also contains a torsion type digester chip level indicator. White liquor is introduced at the top of the digester and impregnated as the chips move downward. Cooking temperature is obtained by extracting liquor through girth strainers inside the digester shell and pumping it through two of three (one is a spare) indirect heaters. The heated liquor is returned through central pipes ending in the center of the digester just above each girth strainer. Condensate is returned to the boiler house after flashing to 15 p.s.i.g.

How Liquor is Extracted

The cooked chips then pass through a diffiusion extraction zone. Here spent cooking liquor is extracted from the digester through two girth strainers. Weak black liquor from the first stage washer filtrate tank is pumped through a pipe into the center of the digester just above the girth strainers and through nozzles around the digester shell below the girth strainers.

The upper girth strainer removes spent liquor at cooking temperature for maximum steam recovery. This liquor is flashed to No. 1 flash tank. No. 2 flash tank receives the spent liquor at lower temperature extracted liquor from the lower girth strainer. No. 1 tank liquor is flashed to No. 2 tank and the combination goes to black liquor storage. Thus, it is claimed that a large amount of solids in the liquor by-pass the washers, to improve their efficiency.

Removing the lower temperature liquor at second girth strainer contributes to a cooler pulp column ahead of the discharge. This provides what is called the cold blow, a procedure which has proven to preserve the inherent strength characteristics of the resultant pulp. A rotary scraper facilitates the discharge of pulp from the digester. The pulp is blown through two variable orifice valves in series into a blow tank. The cold blow pump also recirculates the black liquor from the filtrate tank into the digester, and also maintains the 165 p.s.i. pressure in the digester and high pressure feeder.

Odor is reduced to a minimum by condensing the steam from the steam from the steaming vessel, No. 2 flash tank and the blow tank in the spiral condenser, allowing only the noncondensibles to escape from the system.

Washing and Screening

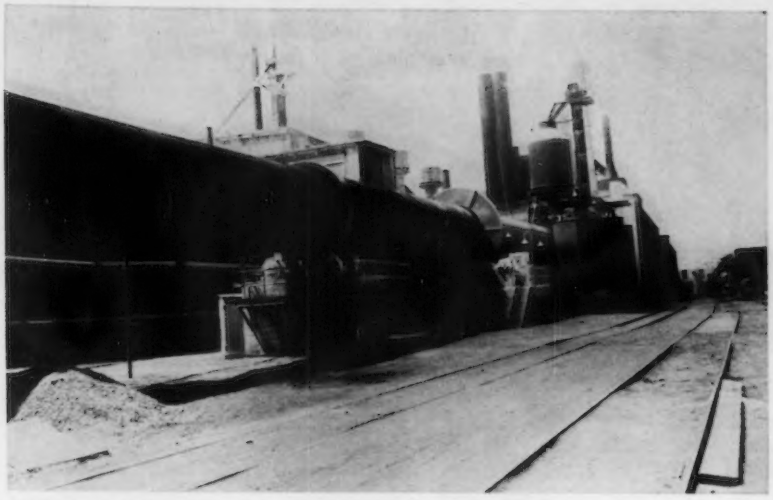
New equipment for the board stock system included, in order of appearance: Jonsson knotters; three stage of 11½ ft. x 20 ft. washers which replaced an existing line; exterior horizontal filtrate tanks; two of 28 ft. dia. x 54 ft. long and the third of 21 ft. dia. x 54 ft. long size; a 16 ft. dia. x 50 ft. high foam tank with foam breaker; and a 20 ft. dia. x 45 ft. agitated blow tank; and concrete, tile lined washed stock chest.

The stock is then pumped through two primary and one secondary Cowan screens. Accepted stock from these screens is taken through two existing and relocated 6½ ft. by 14 ft. rotary deckers. Cowan rejects are passed through six Ahlfors screens and a single disk refiner, drainer, and then returned to the system. A shuttle type belt conveyor carries the screened and deckered stock to two tile high density agitated storage chests, each 33 ft. in dia. by 44 ft. high.

Hot Stock Screening

Improvements in the existing washer system provided a modified form of hot stock screening in between the third and fourth stages. Following the existing three stage washers, a new steel, tile lined stock blending tank was installed. From this blending tank, stock is diluted with filtrate from the fourth-stage washer and pumped to two pressure screens. Accepted stock goes to the fourth stage washer, with primary rejects being passed through in another pressure screen. This arrangement of locating the screen between the washers eliminates the necessity of thickening after screening. The fourth stage washer is newly installed, being of 11½ ft. by 16 ft. size and enclosed in a new building addition. Stock from the fourth stage washer is discharged to either a high density or low density system by means of a screw conveyor. The two high-density agitated chests are steel, tile-lined, and 31½ ft. in dia. by 41½ ft. high.

Prior to bleaching stock is pumped to a Cowan screen and the accepted stock is taken acros a 6½ ft. by 14 ft. decker.



Original lime kiln was replaced by this 250 ft. long 10½ ft. model complete with lime handling and burner auxiliaries.

No major changes were made in bleaching but a new bleach stock screening system was installed. This includes a primary Cowan screen followed by an Ahlfors rejects screen. Accepted stock is cleaned in battery primary cleaners, one of secondary cleaner, and one tertiary cleaner. An existing 6½ ft. by 14 ft. rotary decker which discharges into single shaft peroxide mixer was relocated so as to discharge directly into a tile, high-density chest 33 ft. in dia. by 44 ft. high.

Existing stock piping was replaced with fiberglass reinforced polyester pipe. Two wood stave retention towers were replaced by steel, fiberglass-lined towers, each 7½ ft. in dia. by 63 ft. high. Existing washer vats, inlet boxes and discharge boxes were also lined with fiberglass.

New Recovery Equipment

Black liquor is concentrated from 15 to 55 per cent total solids in a new 7-body septuple effect evaporator. Rate of evaporation is 248,000 pounds per hour. The first two effects are equipped with type 304 stainless steel tubes, and type 304 stainless steel clad tube sheets.

The recovery boiler, incorporating two rotary cascade evaporators, is designed to burn 1,400,000 pounds of dry solids per day and produce approximately 215,000 pounds of steam per hour at 425 p.s.i. and 750° F. However, the boiler has a maximum operating limit of 875 p.s.i. and 825° F.T.T. to provide for future demands.

Flow gasses are passed through a horizontal flow electrostatic, wet bottom precipitator located outside of the recovery building. An induced draft fan is located after the precipitators.

Salt cake makeup arrives in railroad cars and is unloaded to storage by vacuum. Reclaiming and delivery to day bins is by pressure utilizing a rotary blower which also provides for the unloading vacuum. Two new steel tanks provide storage capacity for 2,000 tons of salt cake.

Replacement of existing equipment in the recausticizing includes: one slaker; four 15 ft. dia. by 10 feet high causticizers; one first-stage lime mud washer, 50 feet in diameter by 18 feet deep; one dregs mixer, 8 feet in diameter by 8 feet deep; and two 20 ft. dia. by 20 ft. high lime mud storage tanks. Existing while liquor clarifiers, green liquor clarifiers and dregs washer were modernized to handle the increased through put. In addition to the above, a new 30 foot diameter by 20 foot deep weak wash storage tank and a 25 foot diameter by 21 foot deep clarified green liquor storage tank were installed. Two 40-inch by 5 ft. centrifugal lime and mud filters and a 10½ ft. dia. by 250 foot long lime kiln replaced the previous lime reclaiming system. New burning equipment, stainless steel gas scrubber, induced draft fan, lime mud screw feeder, fresh lime, reburned lime and limestone handling equipment were also installed.

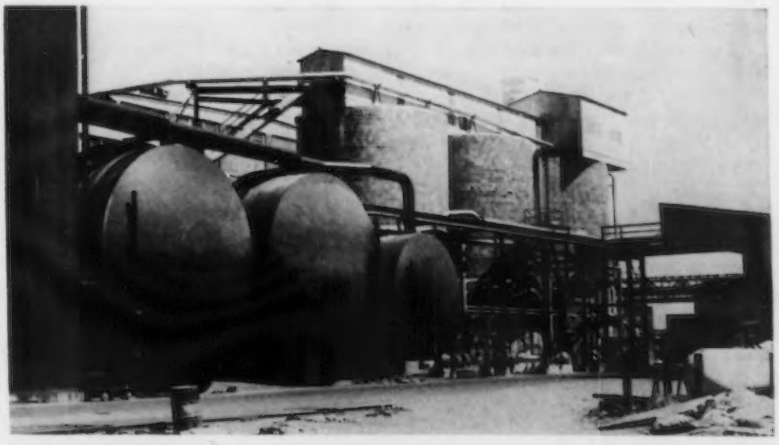
Auxiliary Power Boiler

To supplement the steam produced by the recovery boiler a new power boiler was installed. This model can be gas or oil, pressure fired to produce 210,000 pounds per hour. This boiler was also designed for 1000 p.s.i.g. but is presently operated at 425 p.s.i.g. and 750° F. This procedure of lowering operating condition is said to achieve a more economical steam rate on the paper machine turbine drive when operating against 180 p.s.i.g. back pressure. Power boiler auxiliaries include forced draft fan, steam air heater, and regenerative type air heater.

The entire chemical recovery and steam generating facilities at Tacoma now produce a combined 5,400,000 lbs. steam and reclaim 650,000 lbs. chemicals per day.

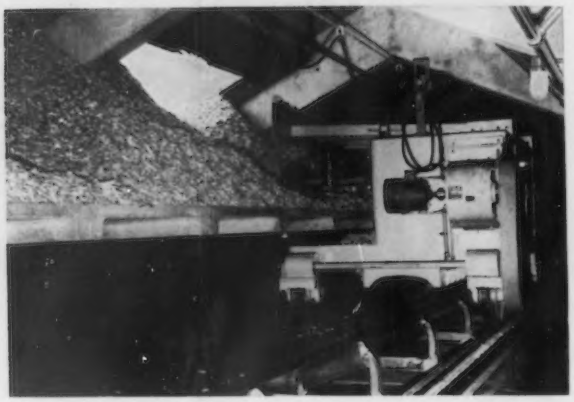
Increased fuel oil demand required an additional 40,000 barrel capacity oil storage tank, two new oil pumps, motor driven screw pump and a reciprocating steam pump, heat exchangers and strainers. Facilities were also added to permit delivery of oil by tanker. A multi-clone-type mechanical flue dust collector was installed in conjunction with the existing hogged fuel boilers. Collected ash is re-injected to the boiler.

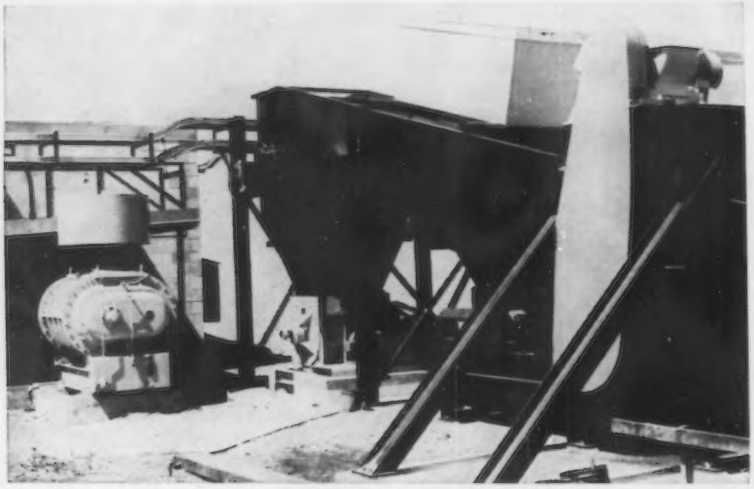
View shows horizontal washer filtrate tanks and high density storage chests next to screening and bleaching buildings.



Four air systems deliver chips from the silos, truck dump, car dump, and woodroom to piles, two of which are serviced by this complex.

Chips are reclaimed from storage by the traveling auger located in a tunnel underneath the pile.





Chips unloaded from RR cars are first screened in the unit. Blower unit for pneumatic conveying system is shown at left.

Chips Travel By Air In Complex System

Principal modifications to the wood handling and preparation plant is the integration of an eight-foot pulpwood system, together with four separate outside chip storage facilities into the existing wood room.

Pulp wood arrives at the St. Regis mill by railroad, logging trucks and by log rafts. Principal species include Douglas fir, hemlock and white fir. The wood is first barked either by the hydraulic barker under 1,400 pounds of water pressure, or by drum barkers. There are four chippers, the largest of which can process 60 cords an hour through its 153-inch disk. Adjacent to the breakdown plant are two 12-ton hoists used to unload trucks of chips. Seven concrete silos with steel bottom cones, each hold 250 cords. Electric vibrators in the silos prevent hanging up of the chips.

The new eight-foot wood system which handles logs up to 24 inches dia. consists of a new drum barker, new chipper and a pneumatic conveying system to outdoor chip storage. The drum barker is 12 ft. in diameter, 67½ ft. long, in three sections and is driven by a 150 h.p. and 75 h.p. motor. Bark refuse is conveyed by belt to a double anvil hog, and thence to previously existing hogged fuel boilers.

The new chipper is a 104 inch, six knife model driven by a 600 h.p., 324 r.p.m. synchronous motor. A 48-inch belt conveys chip to a surge bin and thence by pneumatic line at 40 units/hour, to outside storage. Chips are segregated by species by means of a four-way valve in the chip line controlled by the chipper man. Four piles are maintained, and each contains about 1700 units of chips, or about 920 cords.

Pneumatic System

Rail cars are unloaded by a hydraulic upender. Augers are used to complete the unloading if the cars are not equipped for end dumping. Another pneumatic line, fed by a chain conveyor and rated at 80 units/hour, conveys chips to one of the piles or, in the case of unacceptable chips, to the hogged fuel system.

The third pneumatic line conveys chips from the truck dump piles at a rate of 60 units/hour. This system is completely automatic in that the truck driver merely presses the pushbutton corresponding to the species he is delivering and the four-way valve, the infeed conveyor, the airveyor feeder and blower operate in proper sequence.

The fourth system returns chips from chip silos to the piles at a rate of 60 units/hour.

Increased chip screening is provided by three new chip screens, each rated at 36 units per hour. From the screens the chips are conveyed by a 450 ft. belt to the digester house chip bins.

Under each pile is a tunnel in which is installed a reclaiming auger mounted on rail over a 42 inch belt conveyor. The belt conveyor discharges into a common cross conveyor which carries the chips to the silos. Throughout the chips maintained in four species or blends. The reclaiming augers and conveyors are operated remotely from a central panel at the cross conveyor infeed.

A daily water requirement of 28 million gallons, is supplied to the mill from municipal sources. To increase

capacity of water supply, 2,000 feet of 30-inch pipe-line and 435 feet of 24-inch line were installed. Concrete cylinder type, pipe was laid underground. Some changes were also made to the mill effluent system and improved means for measurement were provided. The fire protection system was also expanded.

Feed water for both the new and existing boilers is treated in a new 700 g.p.m. two-bed demineralizer consisting of two cation units and two anion units with regeneration tanks and controls. Storage is provided by a 34 ft. dia. by 22 ft. high wood stave tank. Form here two new feedwater booster pumps move demineralized water to the deaerating heaters.

A 500,000 pounds per hour jet tray deaerating feedwater heater with 15,000 gallon storage tank and two high pressure boiler feed pumps were also installed for the new boilers.

Electrical power is purchased from Tacoma City Light Co. An additional 24,000 k.w.h. demand was created by the expansion with the installation of over 500 new motors of 29,000 total connected horsepower.

Existing electrical systems were modernized to eliminate overloaded conditions and inadequate fault protection. Twenty-five new motor control centers designed for 480 volt motors were installed. Other new electrical equipment includes unit substations with current circuit stress of 30,000 amp, limiting primary fuses, askarel cooled transformers, secondary air breakers and 4,000 volt distribution switchgear. Generally, new power and control circuits were run in interlocked armored cable with a PVC jacket in cable trays.

PRINCIPAL SUPPLIERS OF EQUIPMENT

Wood Handling & Preparation

Drum Barker	Fibre-Making Processes
Chipper	Sumner Iron Works
Pneumatic Conveying System	Rader Pneumatics
Bark Hog	Sumner Iron Works
Bark Conveyors	Link Belt
Rail Car Dumper	Air-O-Flex Equipment
RR Car Scales	Fairbanks-Morse
Chip Reclaiming Augur	Impco
Chip Screens	Orville Simpson

Kraft Pulp Mill

Continuous Cooking System	Kamyr
Liquor Heaters	ESCO
Spiral Condenser and Liquor Coolers	Rosenblad
Washers	Impco
Centrifugal Screens	Bird Machine; Appleton Machine
Screw Conveyors	James Brinkley
Knotters	Bird
Rejects Screens	Dorr-Oliver
Rejects Refiner	Sprout-Waldron
Centrifugal Cleaners	Bauer

Chemical Recovery and Liquor Preparation

Evaporators	Swenson
Recovery Boiler	Combustion Engineering
Cascade Evaporators	D. J. Murray
Electrostatic Precipitator	Research-Cottrell
Salt Cake Pneumatic System	Fuller
Recausticizing System	Dorr-Oliver
Lime Kiln	Allis-Chalmers
Lime Burner & Gas Scrubber	Peabody Engineering
Mud Fitters	Bird Machine
Lime Handling Equipment	Link-Belt, Carrier Conveyor
Power Boiler	Babcock & Wilcox
Boiler Feedwater Pumps	Bingham
Demineralizer	Cochrane
Fly Ash Dust Collector	Western Precipitation

Stock Preparation

Repulper	Morden Machines
Chest Agitators	Mixing Eqpt. Co.
Decker	Dorr Oliver
Refiners	E. D. Jones, Bolton-Emerson
Magnetic Separators	Emerson Manufacturing
Flowmeters	Foxboro
Broke Refiner	E. D. Jones

Paper Machine

Consistency Regulators	De Zurik
Fan Pumps	Allis Chalmers, Goulds
Stock Cleaners	Bauer
Secondary Headbox	Valley Iron Works

Paper Machine (continued)

Paper Machine	Beloit
Felt Conditioners	Bird Machine
Vacuum Pumps	Roots-Connerville
Extensible Paper Unit	Beloit
High Velocity Dryers	Beloit
Size Press	Beloit
Calender	Beloit
Oil Circulating System	Beloit
Dryer Bearings	Torrington, SKF
Drive Turbine	Westinghouse
Condensate Removal System	Ross-Midwest-Fulton
Flexible Steam Joints	Barco
Hood, Ventilation System	J. O. Ross Engineering
Reel	Beloit
Winder	Beloit
Broke Pulper	E. D. Jones
Suction Box Cover Conditioner	Eastwood Nealley
Roll Grinder	Farrell Birmingham
Core Cutter	Holzem
Starch Cooker	Penick and Ford
Starch Handling	Granuflo System
Crane	Whiting

Roll Finishing, Shipping Storage

Rewinder	Langston
Conveying & Sorting & Handling Equipment	Lamb-Grays Harbor
Counter Roll Stripper	Lamb-Grays Harbor
Scales	Toledo
Strapper	Signode
Roll Wrapper & Header	Lamb-Grays Harbor
Roll Upenders	Lamb-Grays Harbor

General

Pumps	Gould; Allis-Chalmers, Worthington, Ingersoll-Rand, Bingham, DeLaval, Impco, Taber, Dorr-Oliver, Galigher
Instrumentation	Minneapolis-Honeywell (process); Bailey Meter (boiler)
Tile Chests & Linings	Stebbins Engineering, Chemical Linings
Tanks	Chicago Bridge & Iron
Compressors	Joy Manufacturing
Tank & Chest Agitation	James Brinkley, Impco
Consistency Regulators	DeZurik
Motors, Drives & Turbines & Control Centers	Westinghouse, General Electric, Reliance
Forced & Induced Draft Fans	Clarage, Sturtevant, American Standard
Valves	Powell, Rovang, Worcester

Are Saw Kerf Chips Economical Under Present Standards?

Previous work has shown that saw kerf chips make good pulp, but is it the best method of salvaging a present sawmill waste? The Forest Products Lab. has come up with one appraisal.

Industry's efforts to utilize sawdust have been directed principally (but not entirely*) to fabricating molded and similar products from the normally short-fibered sawdust particles. Earlier reports (PAPER TRADE JOURNAL, February 26, 1961) have told of the development of specially modified circular sawmill headsaws equipped with special teeth that produce a commercially acceptable pulp chip. Studies indicate that using a ¼-inch bite per tooth (i. e. length along chip), length of fibers in the resulting chips will range up to 85 per cent of that of standard ⅝-inch chips. Similarly, the burst and tear strengths of kraft pulps ranged from 60 to 85 per cent of those made from the standard chips (See Table I). The greater decrease observed in the bursting strength, in proportion to the decrease in fiber length of the fine fraction of the sawdust, may have been due to damage to the fibers during sawing.

From industry's standpoint, the commercial success or failure of kerf chip sawing as compared to the conventional method will depend on the net profit obtainable by each method.

The fact that more residue may be utilized in some cases from the kerf chip method will be of little importance if in so doing the profit potential per unit volume of raw material is reduced.

Ideally, any evaluation of methods should be made in terms of net profit on the investment, with no appreciable change in mill capacity. Unfortunately, the investment and operating cost data needed for this evaluation are not available. The best alternative is evaluation in terms of gross product, since market values of both lumber and kerf chips are readily available. Evaluation is less complex when based on cants (squared-up logs) rather than round logs, and this simplification is permitted by the close relationship between cant and log volumes.

TABLE I

SOME VALUES OF KRAFT PULP FROM SOUTHERN PINE SAW KERF CHIPS COMPARED WITH STANDARD CHIP.

	Standard Chip ⅝-inch	Saw kerf Chip 3/16-inch round hole screen retained	thru
$KMnO_4$	29	28	27
Burst Factor*	82	68	48
Tear Factor*	165	145	119
Average fiber length (mm)	2.8	2.4	2.2

* Average of values at 450 and 250 cc. C.s.f.

TABLE II

SAW KERF CHIP FRACTIONATION

Length of Bite (in)	% Retained on 3/16-inch round hole screen 12-tooth saw	36-tooth saw
.125	36	49
.25	49	58
.33	59	72

Numerous sawings of Southern pine logs were made on the Laboratory's medium-size commercial saw mill. Four series of cants were sawed: one yielding four 1 by 6's; one yielding six 1 by 8's; the third yielding three 2 by 6's and the last, four 2 by 8's, from the following saws—bites of ⅛-, ¼- and ⅓-inch, 12- and 36-teeth; 5/16-inch and 12/32-inch kerfs. Surface planing standards were established in terms of oversize thickness allowance necessary to produce lumber planed to 75 and 100 per cent skip-free (smooth) surfaces. Similarly, edge planing standards established oversize widths necessary for 80 and 100 percentages of squared edge.

The value of all the salable fractions of kerf chips, whether produced in sawing the cant from the log or the boards from the cant, was included in all calculations involving ¼- or ⅓-inch bites. For the calculations involving ⅛-inch bites, no value was given to any part of the sawdust, since chips produced at ⅛-inch bite were found not to be commercially acceptable.

A value of $89 per thousand board feet (M.b.f.) was used for lumber. This was average for several southeastern saw mills during February 1960. A major purchaser of chips,

*See Paper Trade Journal, July 4, 1960, for a report on commercial pulping of sawdust.

TABLE III

COMBINED GROSS PRODUCT VALUES OF LUMBER AND SAW KERF CHIPS FROM THE SAME CANT

Board Yield from Cant	No. of teeth	0.25-inch Bite		0.33-inch Bite	
		5/16-inch	12/32-inch	5/16-inch	12/32-inch
4—1 X 6	12	&87.51	$83.29	$77.65	$74.36
4—1 X 6	12	$87.51	$83.29	$77.65	$77.36
	36	85.69	81.78	79.68	76.48
6—1 X 8	12	87.49	82.78	78.10	74.34
	36	85.96	81.56	80.33	76.50
3—2 X 6	36	86.15	84.13	81.75	80.02
4—2 X 8	36	86.27	84.24	82.25	80.51

Value, if all lumber, no kerf chips—$89.00 per M.b.f.

in February 1960, was quoting a price of $16.75 per 5,000-lb. unit of slab and edging chips and $15.50 for a blend of kerf, slab, and edging chips. Since the blend is commonly in the range of 65 per cent slab and edging chips and 35 per cent kerf chips, the true price of kerf chips is about $13.25 per 5,000 lb. unit. This is the value used in the calculations.

Table III presents a portion of the gross product values obtained from a given volume of logs by each of the three bites. The gross product value for the 1/8-inch bite either at the 5/16- or 9/32-inch kerf is not shown; as was noted earlier, the value would be $89 for lumber alone, since at this bite, the kerf chips are considered valueless for pulp. The values listed in the table are those obtained only at the lower planing standards; 75 per cent surface furnish and 80 per cent square edge.

A higher gross product value of both chip and lumber results from this combination of planning standards than does the yield when 75-100, 100-80 or 100-100 combinations of planing standards are used.

Table III indicates that gross product value for 1/8-inch bite always exceeds that for 1/4- and 1/3-inch bites for like combinations of variables. The decrease in relative gross product values as the bite increases is less for 2-inch lumber than for 1-inch, under otherwise similar conditions, since the value of the oversizing allowance saved by reduction in number of pieces rises from zero to its value of $89 per M.b.f., as lumber. This is approximately 5.7 times the value of the same material in kerf chip form and more than offsets the reduction in kerf chips resulting from the reduction in number of pieces.

When a volume of logs that would yield 1,000 board feet at a bite of 1/8-inch and 5/16-inch kerf is sawn at bites of 1/4- or 1/3-inch, the gross product values range from a low of $73.12 to a high of $87.51. Similarly, in kerf chip sawing with a kerf of 3/8-inch, the gross product values range from $69.60 to $84.24, as against the $89.00 for conventional sawing with a kerf of 9/32-inch.

How to Predict Gain or Loss

The relationship between the gross product value of kerf chip sawing and conventional sawing is, of course, closely related to the relative prices of chips and lumber. The formula shown below illustrates one method of determining the gain or loss to be expected for any combination of the sawing variables and any desired market values of kerf chips and lumber.

$$\frac{A\ (C \times Pc + S \times Pm)}{S \times B} - Pm =$$

Gain or loss per M.b.f.:

Where C is the weight of salable kerf fraction 3/16-inch and larger; A is cant area (1/8-inch bite, conventional sawing); B is cant area (1/4- or 1/3-inch bite, kerf chip sawing); and S is cant lumber scale divided by 1,000. Market factors are: Pc, price of kerf chips per pound, and Pm, average price of 1,000 board feet of lumber.

As the price of lumber decreases or the price of chips increases, the salvage value of the kerf chips approaches and may exceed the value of the increased oversizing required.

In changing from conventional to kerf chip sawing without a change in product or quality, the price of either kerf chips or lumber that will result in equal gross product values can be determined readily from the above formula by making gain or loss equal to zero and then using either the price of lumber or chips and solving for the other factor. For example, assume the following:

1. production of 1 by 6's
2. 12-tooth saw
3. 75 per cent skip-free surface planing
4. 80 per cent square-edge planing
5. 1/8-inch bite with 9/32-kerf
6. 1/4-inch bite with 12/32 kerf
7. Average lumber price, $89.00 per M.b.f.
8. Gain or loss = 0

If C is 2.9668, A is 29.2646, B is 32.6539, and S is 0.002, then Pc, the price of chips at the equal gross product value point, is found to be $0.00694 per pound or $34.75 per 5,000-pound unit.

Using the same variables and a chip price of $13.25 per 5.000-pound unit, equivalent to $0.00265 per pound, the price of lumber at the equal gross product value point is found to be $33.93.

When, for example, the equal gross product price of kerf chips has been determined it is possible to determine the ratio of the present price of the lumber per 1,000 board feet to the equal gross product price of kerf chips per unit and use this ratio to determine the equal gross product price for lumber from the present price of chips.

Using the same example given above, the ratio of lumber price, $89 per 1,000 board feet, to the computed equal gross product price of kerf chips, $34.75 per unit, is 89.00/34.75 or 2.56 to 1. Applying this ratio to the price of chips, $13.25 gives an equal gross products price for lumber of 13.25 x 2.56 or $33.93 per 1,000 board feet.

Reductions in Oversize

When the ratio of lumber price to kerf chip price, on weight basis, is 5.7 to 1, as it is in this case, and when the salable fraction of sawdust is 60 per cent, the ratio of lumber value to value of the unscreened sawdust becomes 5.7/0.60=9.5 to 1. If, then, no sawdust is salvaged, the loss can be recovered by increasing the lumber yield by 1/9.5 x kerf width. Thus, for a 5/16-inch saw kerf, a reduction in oversize allowance of 0.0329 inch (1/32-inch full) will compensate for the loss of sawdust, and each additional 1/32-inch reduction will increase the lumber value by the amount previously received for kerf chips.

Gains in lumber footage will result from small reductions in thickness even though the savings on all boards from a log do not add up to

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an additional board. The additional footage occurs in three ways. When a log is of a size that will produce, say, four boards plus a shim that lacks only ⅛ inch of being a board of full thickness, a gain of only 1/32-inch on each of the four full boards will bring the shim up to size. In edging and trimming, boards that are a trifle shy in width or length must be edged or cut back to the next smaller size, whereas a slight gain in width or length, due to savings in thickness, may allow the board to make the next wider or longer size class. Furthermore, any savings from reduction in thickness that do not appear as increased footage will appear as an increase in slab and edging volume, completely usable in chip form at $16.75 per unit as compared with $13.25 per unit for the usable portion of the sawdust, equivalent to $8.61 per unit of unscreened sawdust.

The potential savings in thickness are much greater than the 1/32 inch used in the above example. As an example: for 95 per cent compliance to a 75 per cent skip-free surface, a reduction of oversize from 21/64 at a bite of ⅓ inch to 9/64 at a bite of ⅛-inch is possible when using the 12-tooth saw. This reduction of 12/64 or 3/16 inch would bring a shim ½ inch shy in thickness up to full thickness if the log provided only three other boards.

In Conclusion

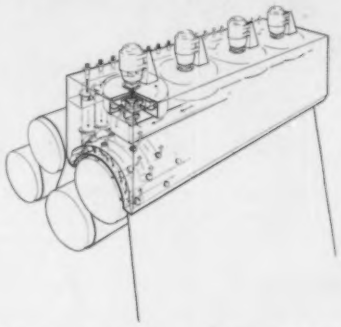
Economic evaluation of kerf chip sawing as a whole indicates that the gross product value of the lumber and the salable kerf fraction under present price structure does not equal the value of lumber alone when produced under controlled conventional sawing procedures. Assuming a value of $89 for 1,000 board feet of lumber developed from a given unit of logs under controlled conventional methods, the gross product value of lumber and kerf chips developed from the same unit of logs ranges from $69.60 to $86.27.

Although larger industry benefits are possible through the substitution of improved milling for kerf chip utilization, the two methods are not mutually exclusive. It is expected that saw improvements or changes in kerf chip specifications may make it possible to produce kerf chips even while doing a precision job of sawing.

Based on Reports Nos. 2210 and 2212 from the Forest Products Laboratory, Madison, Wis. Report 2210 contains a complete table listing the factors for each of the variables in the above formula. In the interest of tractability it is not reproduced here.

SF NEWSLETTER

COMPACT, CONVENIENT . . . SF'S NEW C-TYPE DRYER



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Top versatility for controlling sheet moisture profile is assured by this unique temperature zoning for micro-leveling coupled with the controlled impingement for micro-adjustment.

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Major Expansion Projects

In the Pulp and Paper Industry

(Completion after July 31, 1961)

Company	Location	Project	Expected Completion Date
Bowater Carolina Corp.	Catawaba, S. C.	New paper mill for coated printing papers—75,000 tons/yr.	Fall 1961
Brown Co.	Gorham, N. H.	Expansion program includes new 101-inch paper machine, stock preparation and finishing equipment.	May 1962
Brunswick Pulp & Paper Co.	Brunswick, Ga.	$35 million expansion, adding 500 T/D bleached pulp & board	
Cascade Kraft	Wallula, Wash.	Expansion of kraft paper capacity to 375 T/D. Includes continuous digester.	Fall 1961
Charmin Paper Products Co.	Green Bay, Wis.	New tissue machine.	Late 1962
Consolidated Water Power and Paper Co.	Stevens Point, Wis.	Expansion of pulping facilities and new machine for coated papers. Will bring coated paper capacity to over 300,000 tons per year.	Sept. 1961
Crown Zellerbach	Bogalusa, La.	$8.2 million modernization. New machine for bleached kraft specialty grades. Replaces older machine.	Dec. 1962
Federal Paper Board	Versailles, Conn.	$15 million mill. Project includes 145-inch five-unit Inverform paperboard machine. To produce machine coated folding boxboard.	Fall 1962
Garden State Paper Co. (Newark Evening News)	Garfield, N. J.	Newsprint mill utilizing deinked waste papers.	Early 1962
Georgia Pacific Paper Co.	Samoa, Calif.	Bleached kraft pulp & paper mill, utilizing redwood waste 300 T/D	
Grays Harbor Paper Co.	Hoquiam, Wash.	Adding second machine to bring capacity to 70,000 tons per year of fine papers, $10 million project.	Late 1961
Keyes Fibre Co.	Sacramento, Cal.	Molded pulp plant	Mid 1962
Kimberly-Clark Corp.	Fullerton, Cal.	New creped wadding machine.	
Kimberly-Clark Corp.	Niagara, Wis.	New 170 inch coated paper machine 50,000 tons per year.	
Lumberton Pulp Co.	Lumberton, Miss.	Unbleached kraft market pulp mill 150 T/D	
Manchester Board & Paper Co.	Richmond, Va.	$12 million expansion includes new cold soda pulp mill, new paperboard machine of 60,000 tons per year capacity. New box plant.	Late 1961
Moraine Paper Co.	West Carrolton, Ohio	Deinking plant, new 168-inch bond and offset machine.	Late 1961
Oxford Paper Co.	Rumford, Me.	$15 million program includes new 175 T/D bleached softwood kraft pulp mill and increases hardwood kraft pulp by 100 T/D.	August 1961

Company	Location	Project	Expected Completion Date
Packaging Corp. of America	Berkeley, Calif.	Plant for molded pulp.	Late 1961
Patrician Paper Co.	South Glens Falls, N. Y.	139-inch tissue machine	Sept. 1961
Port Huron Sulphite & Paper Co.	Port Huron, Mich.	$4¼ million expansion includes new 180-in. machine 20-30 tons/day lightweight papers.	Fall 1962
Potlatch Forest Industries	Lewiston, Idaho	New continuous digester for kraft pulp 330 T/D.	
Rayonier, Inc.	Hoquiam, Wash.	Converting sulphite mill from ammonia to sodium base.	Sept. 1961
Rome Kraft Co.	Roma, Ga.	Adding 500 T/D production of kraft pulp and containerboard. 254-inch machine.	
St. Francisville Paper Co.	St. Francisville, La.	Adding 2nd paper machine for double coated stock 80,000 tons/year.	
St. Mary's Kraft Co.	St. Mary, Ga.	Expansion includes new paper machine 236 inches wide for unbleached kraft paper production.	August 1961
Simpson Lee Paper Co.	Ripon, Calif.	$7 million paper mill for production of fine paper, 50 T/D. 120-inch fourdrinier.	August 1961
Southern Land Timber & Pulp Co.	Cedar Springs, Ga.	$42 million pulp and paper mill, 700 T/D kraft liner board and newsprint.	1962
Southwest Forest Industries	Snowflake, Ariz.	$32 million mill for kraft linerboard and newsprint. 150-inch trim linerboard machine. 240-inch newsprint machine. 65,000 tons of kraft and 75,000 tons of newsprint per year.	November 1961
U. S. Gypsum Co.	Jacksonville, Fla.	New mill. Nine cylinder machine, trims 156 inches. 150 T/D.	Summer 1961
West Virginia Pulp & Paper Co.	Luke, Md.	Completing $50 million expansion program. Includes two large printing paper machines. First machine now in production.	Fall 1961
Western Kraft Co.	Albany, Ore.	Expansion from 90,000 to 135,000 tons of linerboard per year. New paper machine.	Early 1962
Weyerhaeuser Co.	Longview, Wash.	New specialty paperboard machine, 120 inch with coater.	Dec. 1961

New Mills and Machines

Plans Tentative, Proposed or Nebulous

Company	Location	Project
Anglo Southern Paper Corp.	Texarkana, Tex.	$60 million pulp and newsprint mill.
Crown Zellerbach Corp.	De Ridder, La.	Pulp and paper mill.
Crown Zellerbach Corp.	Kremmling, Col.	Newsprint mill.
Dixie Land & Timber Corp.	Bainbridge, Ga.	Tissue mill.
Fibreboard Paper Products Corp. and Simpson Timber Co.	Eureka, Cal.	$40 million kraft pulp and paper mill.

(Continued on page 51)

Another example of "Virginia" nationwide technical service

"We can get 77 points with one peroxide stage
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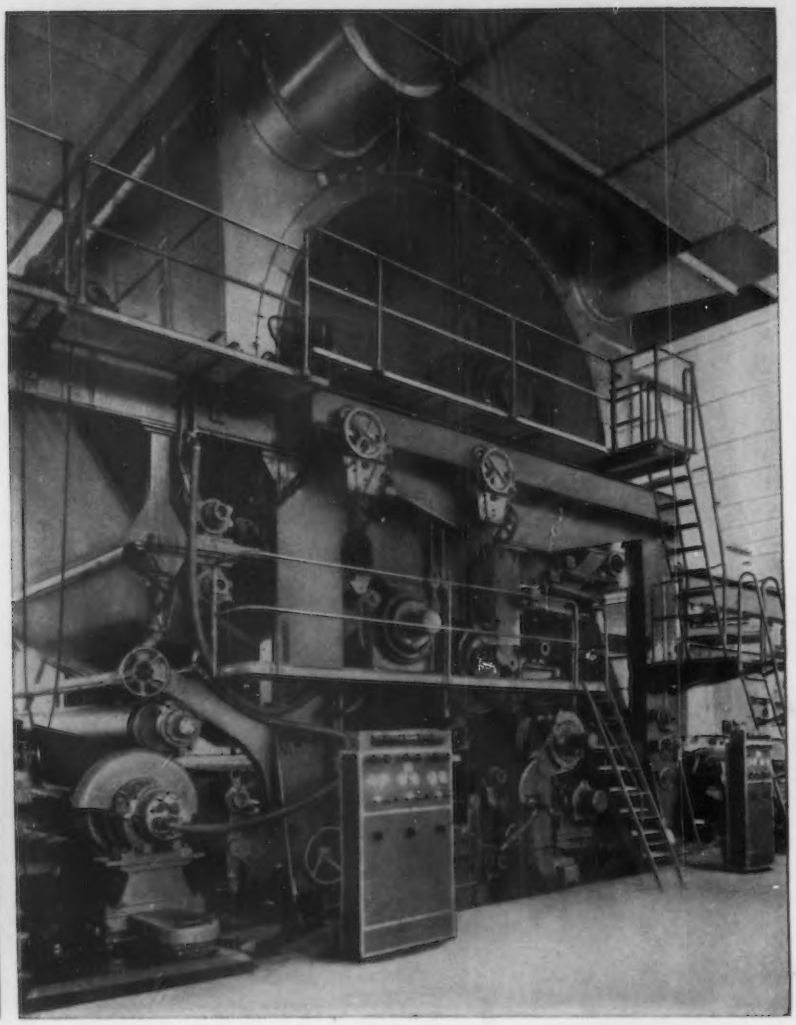

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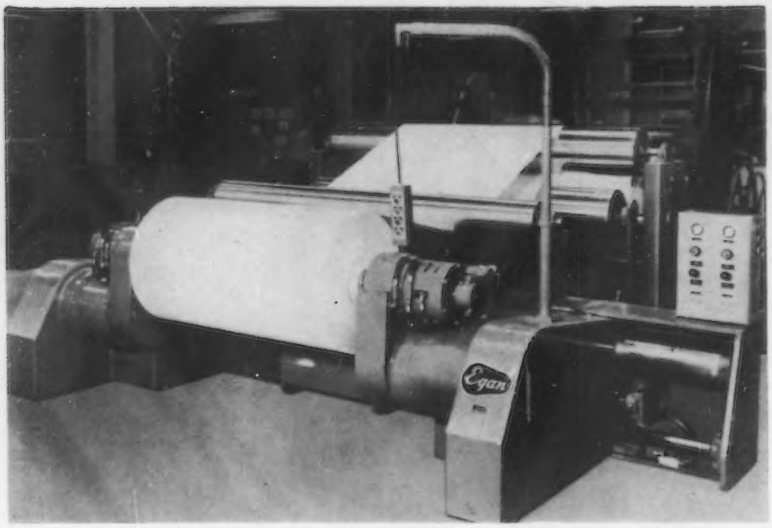
Company	Location	Project
Florida Gulf Fibre Co.	Port St. Joe, Fla.	$13.5 million semi-chemical mill for corrugating medium.
International Paper Co.	Gardiner, Oregon	New mill.
Kimberly Clark Corp.	Anderson, Cal.	Pulp and paper mill.
MacMillan, Bloedel & Powell River Co.	Arizona	$120 million newsprint mill. 60,000 tons per year.
Magnolia Kraft Co.	D'Lo, Miss.	Pulp mill, 100 T/D.
Mississippi Pulp & Paper Co.	Mississippi	Kraft pulp and paper mill.
Napex, Inc.	Colorado	Nitric acid pulp mill.
Noralyn Paper Mills, Inc.	West Baton Rouge, La.	$40 million project, 400 T/D newsprint mill to use hardwoods, 276 inch machine.
Palmetto Pulp & Paper Corporation	Orangeburg, S. C.	Insulation board mill using hardwood waste.
Potlatch Forest Industries	Rohwer, Arkansas	Kraft pulp and board mill, 300 T/D.
Romar Tissue Co.	Wheelwright, Mass.	High speed tissue machine. 96 inch trim.
Simpson Lee Paper Co.	Eastern New York State	New mill for photographic papers, 50 T/D.
Southern Paper Co.	Wiggins, Miss.	Towel and tissue mill, 20 T/D.
Volney Felt Mills	Compton, Cal.	New machine.

A GIGANTIC PROJECT BECOMES REALITY

Shop assembly of Europe's largest newsprint machine (327 in. wire width) is in full swing. Some sections of this gigantic machine have already left our works and are en route to the paper mill. Illustrated above is the headbox of the machine, a sturdy welded construction. - In the design of the headbox has been brought to bear all our knowledge gained from extensive model tests and practical experience in renowned paper mills. We can also draw from the wealth of experience in the operation of many high-speed paper machines.

J. M. VOITH GMBH · HEIDENHEIM (BRENZ) · GERMANY

NEW EQUIPMENT & SUPPLIES



Shaftless Unwind Requires Less Space

The first of Frank W. Egan & Co.'s re-designed shaftless unwind stands has been installed in the S. D. Warren Co. plant, Cumberland Mills, Me. The unit operates at speeds up to 1,000 f.p.m. It will handle rolls 84 inches wide with diameters up to 50 inches.

Other Egan shaftless unwind models are capable of handling rolls from 12 to 90 inches with diameters ranging from 14 to 60 inches. They operate at speeds up to 3,500 f.p.m.

Design features of the Egan shaftless unwind have resulted in production of a more compact unit. Principally, this has been accomplished by eliminating the need for a cross shaft between the pick-up arms. This ultimately allows for less floor space, due to a more compact design. Gear loading is reduced, as well.

Constructed for floor pick-ups, the Egan shaftless unwind is easily handled by one man. Motorized chucking of cores with 3 inches inside diameter and up, as well as skew adjustment are standard features. Automatic sideshifting and constant tension devices are optional items. Frank W. Egan & Co., So. Adamsville Rd., Somerville, N. J.

Flexible Sheet for Lining Steel, Wood, Concrete

Ry-O-Line F-10 is a flexible and elastic sheet lining, based on high-molecular weight polyvinyl chloride resins and compounded with specially selected stabilizers and chemically resistant plasticizers. It lends itself to the lining of steel, wood, or concrete surfaces in a wide range of sizes and shapes.

Since neither the lining nor the permanent cement bond require curing, installation is possible wherever desired. Joints between individual lining sections are hot-gas welded, producing a homogeneous lining of uniform chemical and physical properties.

Chemical resistance and the ability to adhere Ry-O-Line F-10 to a variety of base materials facilitates its use as a membrane-lining, to be covered by corrosion-resistant brick for mechanical or thermal protection. At operating temperatures in excess of 160°F, Ry-O-Line F-10 will gradually soften and may be subject to accelerated chemical attack. Such applications necessitate brick sheathing over the F-10.

Mechanical damage to the lining is easily repaired and alterations carried out without dismantling or removing such equipment, since curing is not required.

The material is primarily used in lining of process and storage tanks, tank trailers, special process equipment, chutes, troughs, and vessels handling most corrosive materials.

Ry-O-Line F-10 Lining is available in black and white in standard thickness of 3/32, 1/8, and 3/16 inch. Applicators are supplied with all accessory materials. Joseph T. Ryerson & Son, Inc., Industrial Plastics Division, Box 8000-A, Chicago 80, Ill.

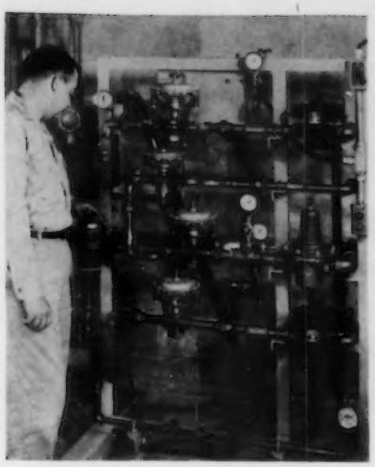
Buckles for Use With Rayon Cord Strapping

One-piece, galvanized steel buckles, designed and patented for use with "Avistrap" rayon cord strapping, are now available from the Industrial Packaging Dept. of American Viscose Corp. Model AVB buckles are offered for all widths of Avistrap, from ¼ to ¾ in., and including the heavy-duty ⅝ and ¾ in. widths.

Easily applied to all types and sizes of cartons and packages, Avistrap buckles require no tools and are claimed to assure at least 90 per cent joint efficiency. The speed

of applying the one-piece buckle is in many cases equal to or faster than that of metal strapping combination tools. Settling loads may now be re-tensioned with certain one-piece tools, thus eliminating any possible need for re-strapping.

Avistrap AVB buckles can be used on any area of a package, top or side, and are well-suited for round objects. Pre-cutting of strap is not necessary; it can be applied to all types of containers direct from the Avistrap coil. Both the buckles and the rayon strapping are reusable, if desired; there is less than two inches of waste when buckled Avistrap is reused. Industrial Packaging Dept., American Viscose Corp., 1617 Pennsylvania Boulevard, Philadelphia 3, Pa.



Starch Cooker Offers Choice of Operation

A continuous starch cooker which will operate either full time, or respond automatically to process demands, has been developed by the Industrial Division, Corn Products Sales Co., 10 East 56th Street, New York 22, N. Y. The operator can select continuous or intermittent operation by simply pressing a button.

In addition to the basic cooker elements, which consist of a steamline, slurry line and tangential injection heater, Corn Products also offers a series of accessory components to provide for automatic thermal or mechanical modification. Accessories can also be supplied with the cooker for the addition of chemicals or other ingredients.

Heart of the cooker is the specially-designed tangential injection steam heater which injects steam directly into the moving slurry for instantaneous gelatinization. The degree of starch granule breakdown can be controlled either by tying a water line into the unit immediately after cooking (providing instant quenching of the starch stream) or the steam valve can be adjusted to permit only partial cooking.

Automatic addition of water or other modifying liquids at this point can also be used to control final temperature of the mix. If following this stage the mix temperature has to be raised before delivery to point of use, another of the simplified heaters can be installed in the line.

The unit is controlled by automatic compressed air valves which start and stop the flow of water, steam, starch slurry, chemicals and additives. The cooker can be designed to deliver any reasonable quantity of paste per minute. High and low level indicators control cooker operation

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For all phases of paper manufacturing and converting... beaters, tub sizing, coatings, calendering, corrugating and laminating.

all fine products...

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ANHEUSER-BUSCH, INC.
Bulk Corn Products Division
St. Louis, Missouri

Fox River Paper Corporation — Fine Papers

Appleton, Wisconsin — April 4, 1961

Mr. Huber Newcomb
The Manchester Machine Co.
Middletown, Ohio

Dear Mr. Newcomb:

Your request for information regarding the operation of our No. 5 Machine press section has been taken from our records and represents a comparison of 9 months operation of the old press section with 9 months operation of the new press.

1. Steam cost savings per ton of paper - Decrease of 9.16%.
2. Felt cost per ton of paper:
   a) First Press - Decrease of 35.0%
   b) Second Press - Decrease of 21.0%.
3. Production (based on pounds) - Increase of 5.6%.
4. Downtime (based on cost) - Decrease of 19.6%.

The start-up of the new press section presented no problem, and, outside of a few minor changes, is operating exceptionally well. The quality of the paper has improved and is more uniform. The control that we have on the operating pressures of the presses has been a great help in the grades that we manufacture.

We have been able to increase the speed on certain grades, but for most of our grades we have maintained the same speeds due to other machine operating conditions. Therefore, the improvement of the machine operation, steam costs, felt costs and production are due entirely to the press section.

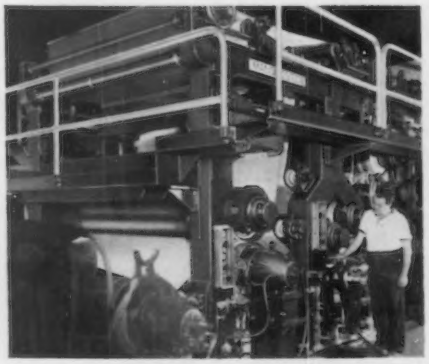
If you should need additional information, please contact us.

Very truly yours,
Arnold G. Beaman
A. G. Beaman
Superintendent

AGB:jn

MANCHESTER PRESS SECTION CUTS COSTS FOR FOX RIVER

You get more water removal, improved quality and lower operating costs with a Manchester press section. In his letter, above, Superintendent A. G. Beaman reports on the results of a Manchester installation at the Appleton, Wisconsin mill of The Fox River Paper Corporation. Manchester's successful experience with presses and press sections assures similar savings and production advantages for you. Do as other industry leaders are doing — when you plan your next press section, call in the man from Manchester. Write: *The Manchester Machine Company, Middletown, Ohio.*



Manchester suction press section installed on No. 5 machine at Appleton, Wisconsin mill of Fox River Paper Corporation.

Manchester... profit builders for papermakers

THE MANCHESTER MACHINE COMPANY

MANCHESTER
PRESS SECTIONS
SAVE MONEY
FOR THESE
AND OTHER
FIRMS, TOO

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- BESTWALL GYPSUM COMPANY
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- WEST VIRGINIA PULP AND PAPER
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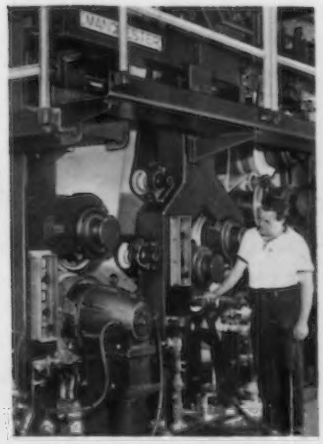
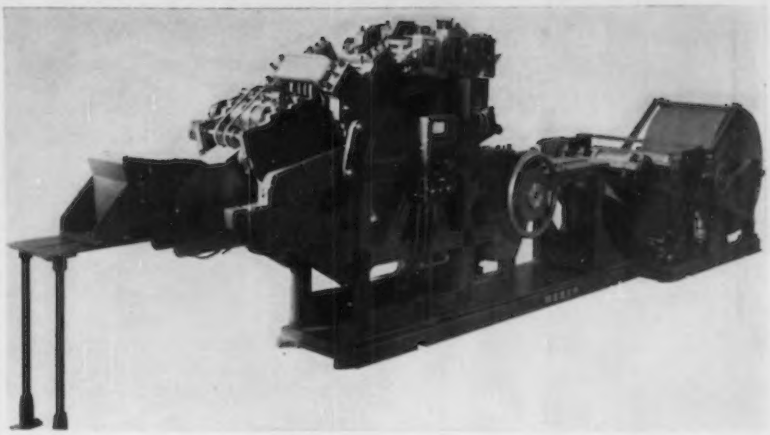
THE MANCHESTER MACHINE COMPANY





HIGH-SPEED S.O.S. GROCERY BAG production with this 8 lb. single size machine has been proven at an average speed of 550-600 b.p.m. Through planned designed modifications, it is anticipated that production will be increased to 700 single size, self-opening square-bottom bags. Other size machines are capable of comparable production, with the ⅛ bbl. supermarket carryout bag being produced at 400 to 450 b.p.m. A complete range of sizes from 4 lb. to 1/6 bbl. "Shorty" is available from H. G. Weber & Co., Inc., Kiel, Wis.

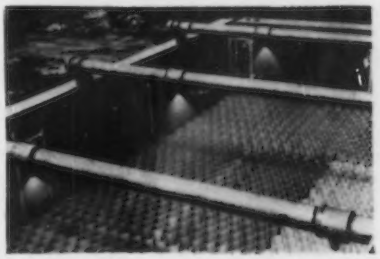
and insure a continuous supply of fresh starch gel. It functions equally well on any starch product, claims Corn Products, from the thick boiling type to high solubility dextrines.

The compact unit occupies only six sq. ft. of floor space. It can be installed at any point in the plant and can easily be sectionalized, if necessary, says the manufacturer.

Trickle Filter Packing Made of Saran Material

A plastic packing for treatment of water-borne wastes in trickling filter applications is now being produced and marketed by Dow Industrial Service.

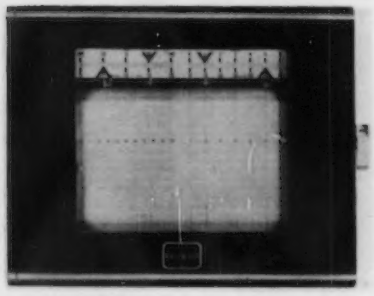
Called Dowpac 20A, the material consists basically of individual sheets, corrugated in two directions, measuring approximately 36 by 21 inches. A self-spacing design permits the sheets to be assembled side by side to form a cubic module for



erecting an aerating tower of appropriate size.

The special configuration of the sheets is designed (1) to distribute falling liquid wastes in thin films over large surface areas so that maximum aeration efficiency is obtained; (2) to provide a high percentage of void space for unimpeded natural-draft ventilation and waste flow; and (3) to provide large surface areas to which active biological slimes can adhere.

Sheets of Dowpac, fabricated from a special stabilized saran, offer several significant advantages, says Dow. The material is light weight (approximately 6 pounds per cubic foot), yet is completely self supporting—a factor which cuts erection costs in tower construction by eliminating conventional vitrified tile underdrains and structural contain-



4-IN-1 RECORDER will transduce any set of four variables into an electrical quantity. Each pen has its own motor driven balancing unit. Said to be ideal where space is a problem. Dynamaster Recorder by Bristol Co., Waterbury 20, Conn.

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BUILT TO OPERATE AT ANY MACHINE SPEED

SYSTEMS ALSO BUILT FOR APPLYING SIZING MATERIALS, STARCHES, WAX EMULSIONS, PLASTICIZERS AND OTHER SURFACE FINISHING SOLUTIONS.

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WRITE FOR LITERATURE

VAPO SYSTEMS
132 W. Home Avenue, Villa Park, Illinois

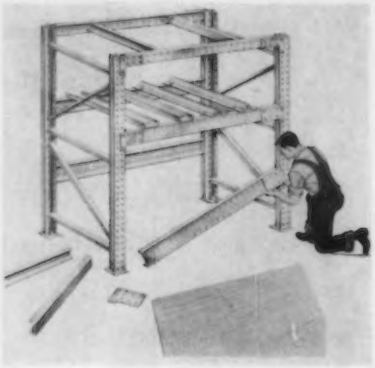
ment walls. A simple enclosure to protect the packing from wind and weather is the only wall requirement.

Assembly of the units is accomplished with a special automatic welder available from Dow Industrial Service. Standard modules are built by stacking 36 sheets to form a cube-shaped "package." Locators molded into the Dowpac align the sheets. Internal and edge welding is accomplished simultaneously at a temperature of about 400°F. Packed depth up to 42 feet in height do not appear to interfere with the free passage of air and waste.

Capable of withstanding shock loads of organic and toxic substances, Dowpac has been subjected to hydraulic rates in excess of 800 million gallons per acre per day without evidence of restricted air circulation. Dow Industrial Service, Division of The Dow Chemical Co., 20575 Center Ridge Road, Cleveland 16, Ohio.

Multiple Unit Racks Assembled in Minutes

The Paltier Corp. announces the Bild-A-Rack, Series 4000 which requires no special tools, no extra



equipment, no cutting and yields no scrap. It comes packaged complete, ready for immediate assembly in a few short minutes—no long, involved setup time, no welding. It is fabricated of all galvanized steel formed channel with upright capacity of 10,600 lbs. for 144 inches of height. Beam capacities are available up to 4,200 lbs. for each pair of shelves to a span of 106 inches. Designed for assembly as single or multiple units, one shelf or a thousand. Available in all popular sizes.

Bild-a-Rack is designed as both a pallet rack or heavy-duty shelving. It is in complete accord with AISE and AISI Codes. All rated capacities are figured with 1.65 safety factor over yield. The Paltier Corp., 1701 Kentucky Street, Michigan City, Ind.

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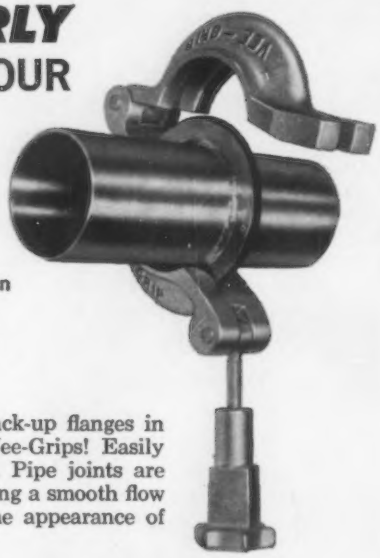

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- **Available for 3", 4", 6", 8" and 10" tube and pipe.**

Save time! Replace ordinary back-up flanges in your stock lines with Overly Vee-Grips! Easily put on or taken off in seconds. Pipe joints are held in perfect alignment, assuring a smooth flow of stock. They also improve the appearance of your stock line installations.

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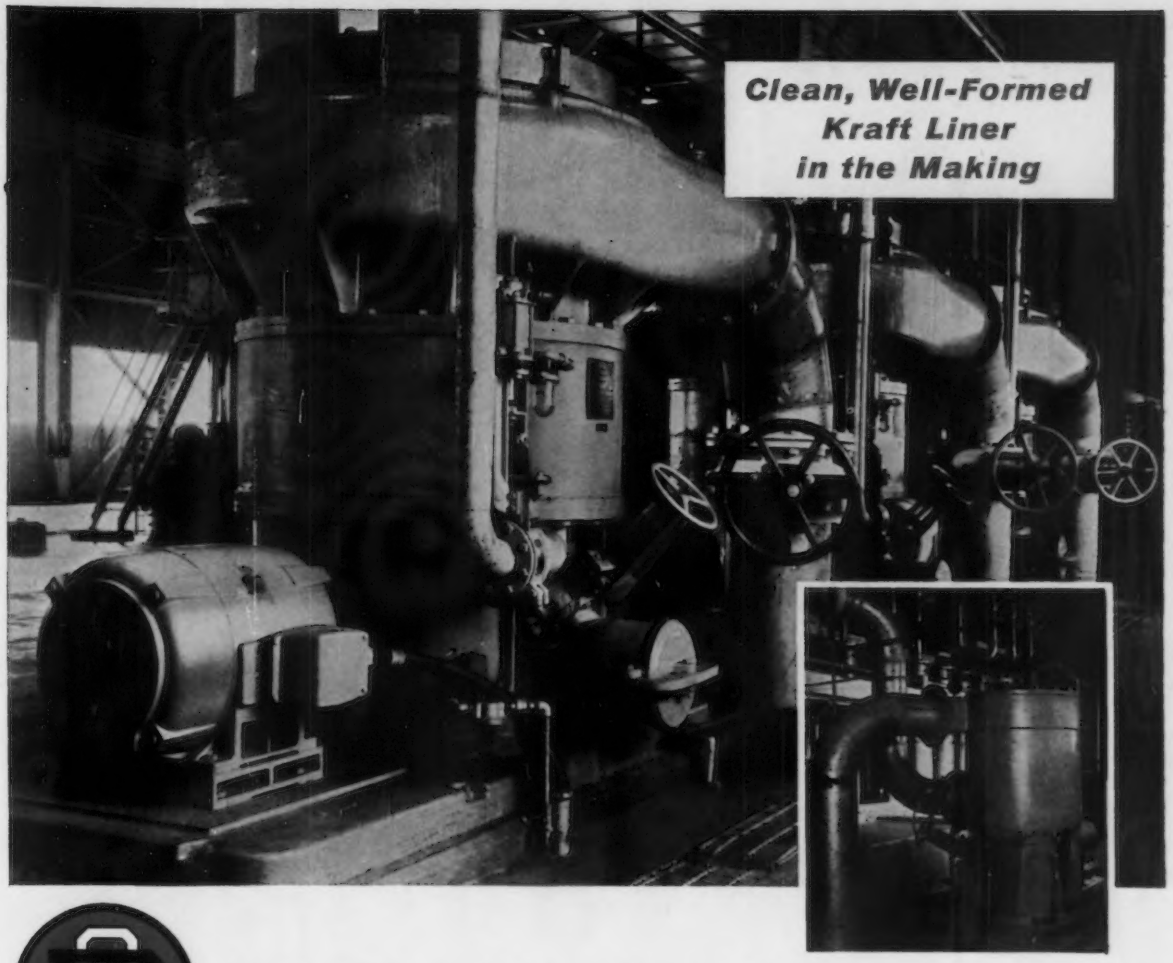

Selectifier® Screens More than Double Wire Life Expectancy and Protect the Paper Machine at Tennessee River.

Three Model 36-P Selectifiers ahead of the primary pressure headbox and one Model 30-P on the secondary headbox of the new machine at Tennessee River Pulp & Paper Company, Counce, Tennessee, do the final cleaning and assure a completely dispersed fiber suspension for perfect sheet formation.

Result: Clean stock, excellent formation, extended wire life and protection against damage to the paper machine.

Selectifier Screens have been getting these same results for papermakers everywhere for 19 years... and over 2000 installations. Pressurized screening is a Black-Clawson development.

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Middletown, Ohio
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Sulfite Acid Preparation
Sulphite Pulp Acid Making Systems
Cooking Sulphite Pulp
Sulfite Pulping
Neutral Sulfite Semi-Chemical Pulping
Soda Pulping
Kraft Pulping
Sulphate Recovery Units
Chemical Recovery Unit
Peroxides
Peroxide Bleaching
Chlorine Bleaching
Corrosion-Resistant Metals for Pulp and Paper Industry
Application of Chemical Engineering To Pulp and Paper Technology

PAPER SECTION

Waste Paper, Its Collection and Usage
Facts Concerning the Waste Paper Industry and its Relationship to Pulp in the Paper and Paperboard Industries
Beating and Refining
Stock Preparation
Fillers and Loading
Paper Fillers
Starch Sizing of Paper
The Dyeing of Paper
Coarse Papers Bag and Board
Coarse Papers
Sanitary Tissues
Instrument Applications in Pulp and Paper Mills
Fourdrinier Paper Machines—Wet End
Paper Machines—Wet End
Fourdrinier Paper Machines—Dry End
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The ***University of Maine Lectures***, Series II, Contains 373 pages of up-to-date material covering a broad field in both pulp and paper making and including many fine illustrations and diagrams. The book was edited by Professors Lyle C. Jenness and John Lewis of the University of Maine. This cloth-bound book originally sold for $7.50.

The *Lectures* can be used as a textbook to train foremen and to orient engineers entering the field. Executives, superintendents, engineers and chemists will also find this book invaluable. Every mill should have one or more copies for quick reference to provide figures, process details, and information indicated by subject file at left.

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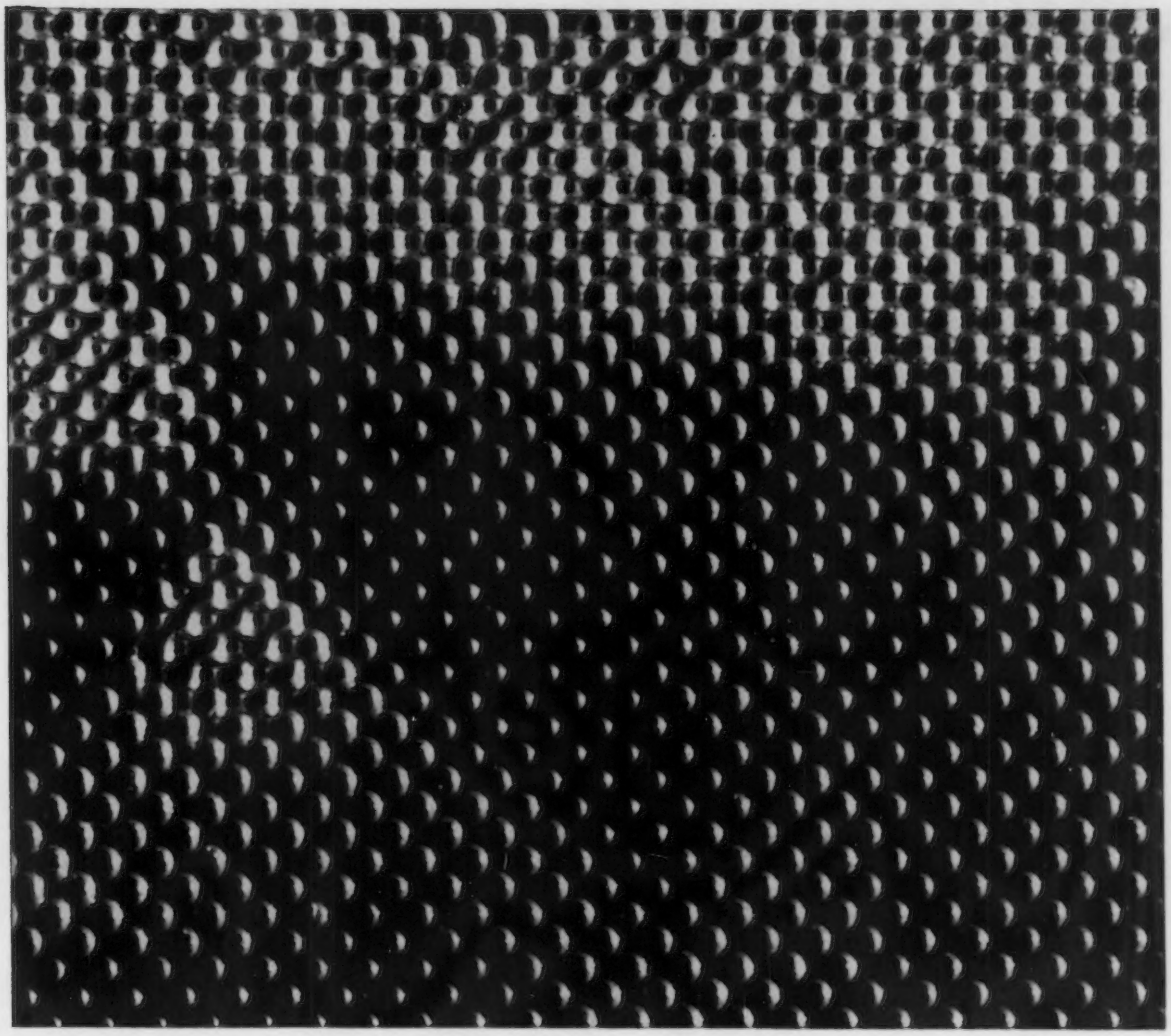

Superior pick resistance evident as 120-line copper engraving remains clean after 20,000 impressions.

NOW . . . with **NEW DOW LATEX 630**

• Superior Pick Resistance • Excellent Mechanical Stability
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Here is the newest development in latex for paper coatings, new Dow Latex 630 . . . raising quality to a new high and giving you new manufacturing advantages and new selling features! New Dow Latex 630 gives you better control of paper uniformity . . . helps you stabilize paper surface quality . . . brings printing closer than ever to really true-to-life reproduction.

It will pay you to get detailed information now from The Dow Chemical Company, Midland, Michigan, Coatings Sales Department 1933DP8-14.

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PTJ NEWS OF SUPPLIERS

A. E. Staley Manufacturing Co., Decatur, Ill., has announced four supervisory promotions in the Research and Development division.

H. M. Walton, formerly with the exploratory group and for the last six months a member of the polymer group, has been appointed research associate. John A. Wagoner has been promoted to group leader to supervise the physical chemistry group. R. M. Powers has been promoted to head of a newly created laboratory of instrumental analysis. K. M. Brobst has been appointed head of the analytical laboratory.

Giove Co., Inc., announces that its telephone number has been changed to GRamercy 5-5100 from GRamercy 5-5101-2-3-4. The company is located at 557 Water Street, New York 2, N.Y.

Glidden Co.'s Chemicals Division, Pigment and Color Department, has named William J. Barnett as sales manager — pigments, with headquarters at the Adrian Joyce Works, Baltimore, Md.

At the same time, John Owen Jones was named product manager —colors, with headquarters at the St. Helena Works, Baltimore.

Prior to his appointment, Mr. Barnett, who has been a Glidden sales executive for nearly 20 years, was sales manager of the division's Southern District at Atlanta, Ga.

Mr. Jones had been district sales manager in Cleveland, Ohio.

H. A. Harvey

W. M. Crawmer

Penick & Ford, Ltd., Inc., has announced the creation of an autonomous Pacific sales territory for the Corn Refining Division. The Pacific area had formerly been a district of the Western territory.

Harold A. Harvey was appointed sales manager. Mr. Harvey joined Penick & Ford in 1936. Since 1949 he has been district sales manager for the Pacific Coast.

Rust Engineering Co., Pittsburgh, Pa. has made William M. Crawmer senior pulp and paper mill staff consultant. He joined Rust in 1959 as a staff consultant to specialize in the design and construction of pulp and paper mills.

Previously, Mr. Crawmer was a pulp mill superintendent for Mead Corp. with ten years of service.

Bailey Meter Co., Cleveland, Ohio, has announced the appointment of five men to direct the company's engineering departments.

A. J. Hornfeck has been named director of research. This department is responsible for research and development on new products.

J. E. McEvoy is manager of the product engineering department which is responsible for mechanical and pneumatic equipment design and product engineering, and for the development of engineering standards. Mr. McEvoy is also responsible for product quality control.

R. E. Clark is manager of the equipment engineering department which processes parts, standard product, special product, and repair orders.

J. K. Loeser is manager of the project engineering department which processes pneumatic and electric control system and control panel orders.

J. V. Werme is manager of the electrical engineering department. This department is responsible for electrical equipment design, and product engineering, and also processes analog and digital computers and data processing systems.

Shawinigan Resins Corp., Springfield, Mass., has appointed Irving Ash and Bruce E. Porter to newly created district manager posts.

The two men now will be responsible for the activities of the sales staff in considerably enlarged territories. Mr. Ash is located in New Jersey and Mr. Porter in Cleveland, Ohio.

A native of New York, Mr. Ash joined Shawinigan's field sales force in 1957. He received a B.S. degree in chemistry from the City College of New York in 1941 and did advance work in chemistry at the Polytechnic Institute of Brooklyn.

Mr. Porter, a native of Massachusetts, joined the sales department in 1955. He received a B.A. degree in mathematics from Brown University in 1948.

(Continued on page 64)

AMERICAN AND ENGLISH CLAYS

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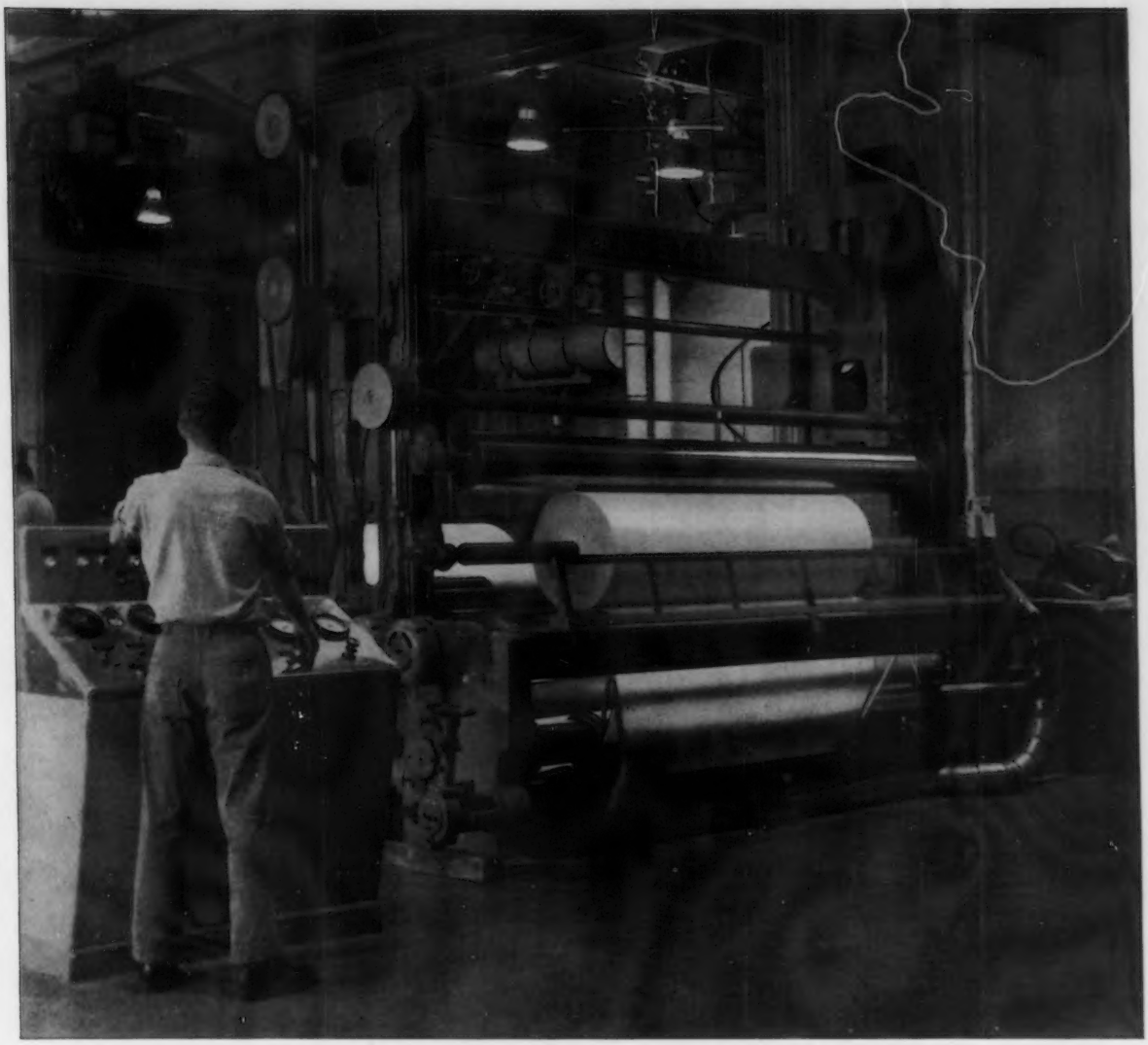


Want uniformly wound, scratch-free rolls of fine paper? Call Langston

Every type of paper has its own special winding requirements. This is why Langston offers winders with so wide a variety of features—why you can get the exact winding results you want, for your particular weight, grade and finish of paper.

The two Langston winders recently installed at Hurlbut Paper Co. (subsidiary of The Mead Corporation), at South Lee, Mass., were built to handle fine specialty papers. Instead of standard, fixed-type spreaders, Langston used rotating-type cambered spreaders. They not only eliminate scratches, but insure clean separation of the rewound rolls.

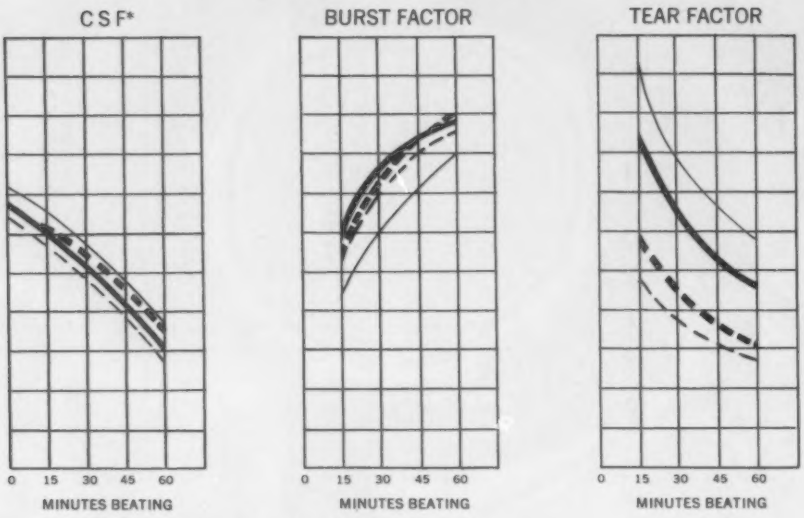
Operators like the easy operation of these machines. From a convenient console, they can operate practically all controls, including automatic constant sheet tensioning, automatic roll ejection, winder speed, and lateral adjustment of back stand.

What are your special requirements in a winder? Langston can engineer a winder to meet them. Write for information. Samuel M. Langston Co., 6th and Jefferson Sts., Camden 4, N. J.

Langston LEADERSHIP . . . BY DESIGN

CELGAR KRAFT HAS BALANCED PROPERTIES

STRENGTH VALUES



TYPICAL PRIME CELGAR BLEACHED KRAFT
TYPICAL PRIME NORTHERN CANADIAN BLEACHED KRAFT
TYPICAL PRIME WEST COAST BLEACHED KRAFT
TYPICAL PRIME SCANDINAVIAN BLEACHED KRAFT

*Canadian Standard Freeness

As shown by the above graphs, Celgar Kraft compares favourably with the world's best prime bleached kraft pulps in standard pulp tests.

In the all-important beating time to required papermaking freeness, it develops faster than other typical Canadian bleached kraft pulps, comparing favourably with the fast-beating Scandinavian furnish. This feature means high-volume output from repulping equipment at reduced power cost.

The bursting resistance of prime bleached Celgar Kraft exceeds or compares favourably with the best of its competitors while it is excelled only by West Coast bleached krafts in tearing resistance.

This unique and outstanding balance of properties at a high level can be achieved because of the Interior grown tree species used, the climatic conditions under which they grow and the modern process equipment installed in the new Celgar mill. These pulping characteristics, coupled with low beating time and good printability, place Celgar Kraft among the best bleached kraft pulps available in the world.

Distributors and agents for:

Celgar Kraft Pulps and Columbia Cellulose Viscose, Acetate and hardwood and softwood specialty sulphite paper pulps.

Canada and United States
(kraft and sulphite pulps)
Columbia Pulp Sales Limited,
1600 Dorchester Street West,
Montreal 25, P.Q.

England
(kraft and sulphite pulps)
Columbia Pulp Sales Limited,
49 Old Bond Street,
London, S.W. 1.

Germany
(kraft and sulphite pulps)
Canadian Forest Products
GMBH,
Königstrasse 10B,
Stuttgart N, Germany.

France
(kraft and sulphite pulps)
Ekman & Cie,
36 Bld. Haussmann,
Paris 9, France.

Italy
(kraft pulps)
Rappresentanza Ekman,
Cellulose Tvedesi,
Via Manzoni,
Milan, Italy.

Italy
(sulphite pulps)
W. Pauly & Co.,
Via Vittor Pisani, 5,
Milan 508, Italy.

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1600 Dorchester Street West, Montreal 25, P.Q.

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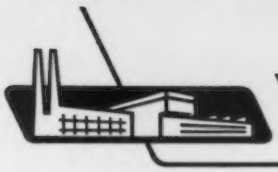
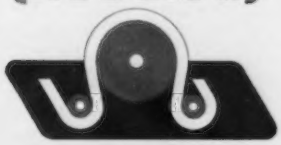


Paper Mill Suppliers, Inc.

KALAMAZOO, MICH.

for **SALES • SERVICE • TECHNICAL ASSISTANCE** *on*

DRI-TUFT
(needled)



DRI-WEAVE
(woven)

DRYER FELTS

Paper Mill Suppliers, Inc. has been founded by Frank Clawson who has more than eight years experience in dryer felt sales and service.

Foremost quality of quick-drying, longer-lasting dryer felts is assured, because *Dri-Tuft (needled)* and *Dri-Weave (woven)* dryer felts are manufactured by Albany Felt Company.

For dryer felts to meet your most exacting requirements write or phone today.

Paper Mill Suppliers, Inc.

P. O. BOX 931 KALAMAZOO, MICH. PHONE FI 9-1925

NEWS OF SUPPLIERS

(Continued from page 60)

Becco Chemical Division of FMC Corp. (formerly Food Machinery and Chemical Corp.) has promoted George J. Motz to assistant manager of the New York-Philadelphia sales district.

Mr. Motz has been a sales representative for Becco in this same territory since 1957, and will continue to make his headquarters in the division's New York district office in the Graybar Building.

A graduate of Texas A. & M., from which he received both B.S. and M.S. degrees, Mr. Motz joined FMC's Canning Machinery Division in March 1947 as a sales representative in the Gulf States area. He came to Becco in November 1956, and after completing his training course was assigned to the New York-Philadelphia district, covering greater New York, western Connecticut and Massachusetts, and Vermont.

Dorcon, Inc., a wholly owned subsidiary of Dorr-Oliver, Inc., Stamford, Conn., is being formed to engage in the design, manufacture, fabrication and field erection of metal tanks, water and chemical storage facilities, and process and reaction vessels.

Officers of the new company will be: president, Alex Fino; treasurer, K. Earl Abel; and secretary, John W. Swick. Administrative and engineering offices will be at Warren, Pa., and sales headquarters in Pittsburgh, Pa., with Max G. Walker as sales manager.

The addition of Dorcon to the Dorr-Oliver group of companies will provide a specialized organization to engineer and erect plate steel vessels required in connection with such Dorr-Oliver equipment as thickeners, clarifiers, and reactors, and with Dorr-Oliver process and plant engineering operations.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	July 1	July 8	July 15	July 22	July 29
1961	90.8	53.7	83.1	89.6	88.6
	July 2	July 9	July 16	July 23	July 30
1960	88.3	58.3	83.6	91.0	91.6

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	96.5	97.7	98.1	96.9	97.6	96.1	81.2	91.7	89.1	94.8	92.0	80.2	92.7
1961	87.9	90.0	91.2	91.2	91.6	91.4‡	78.8‡						

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1954	1955	1956	1957	1958	1959	1960	1961
Year to Date	91.5	95.6	99.1	91.9	85.9	91.4	94.9	89.5
Year Average	91.6	96.2	97.9	90.4	87.0	92.2	92.7	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	July 1	July 8	July 15	July 22	July 29
1961	95	55	73	91	92
	July 2	July 9	July 16	July 23	July 30
1960	90	50	74	91	94

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1960	92	95	94	93	94	92	78	94	88	93	86	73	89
1961	88	89	91	91	91	94	78†						

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	WEEK ENDING July 22, 1961	WEEK ENDING July 29, 1961	CUMULATIVE TO DATE Jan. 1, 1961 to July 29, 1961
% Activity	91%	92%	89%
Total	308,751	316,686	9,198,420
Containerboard—Domestic Use	153,072	158,178	4,653,482
Liner	96,718	103,247	3,093,773
Corrugating Material	50,653	50,874	1,418,179
Chip & Filler Board	5,701	4,057	141,530
Boxboard—Domestic Use	90,276	93,581	2,823,253
Folding	54,667	59,208	1,687,938
Set-Up	9,320	8,318	266,949
Special Food Board	26,289	26,055	868,366
Other Paperboard	65,403	64,927	1,721,685
Containerboard Type	34,748	31,025	826,493
Boxboard Type	30,655	33,902	895,192
Total Orders			
Received	310,025	310,951	
Unfilled End of Week	480,165	471,652	

RECORD PAPER & PULP STOCK VALVES "BONNETLESS" SELF CLEARING - - - "RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M. all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced gate seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- **The "FAST THREADED" screw stem and ball bearing speeds valve operation.**
- **The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.**
- **The yoke mountings are such that yokes for various methods of gate operation are interchangeable.**
- **Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.**

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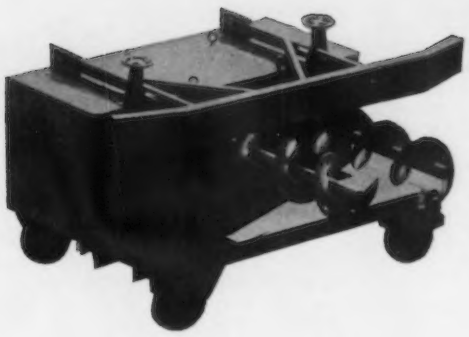
RECORD FOUNDRY & MACHINE COMPANY

LIVERMORE FALLS, MAINE, U. S. A.

SLAB CHIP STORAGE BECOMES POPULAR WITH IMPCO CHIP DISCHARGER



This discharger travels back and forth on rails in a tunnel under your chip pile. The action of its two counter-rotating screws withdraws the chips through a continuous opening in the side of the tunnel onto a traveling belt conveyor. A rapid and regulated flow of chips is fed directly to your digesters. No operator is required since the discharger is remote controlled from the digester floor. Feed capacities up to 100 cords per hour with 15 connected horsepower.

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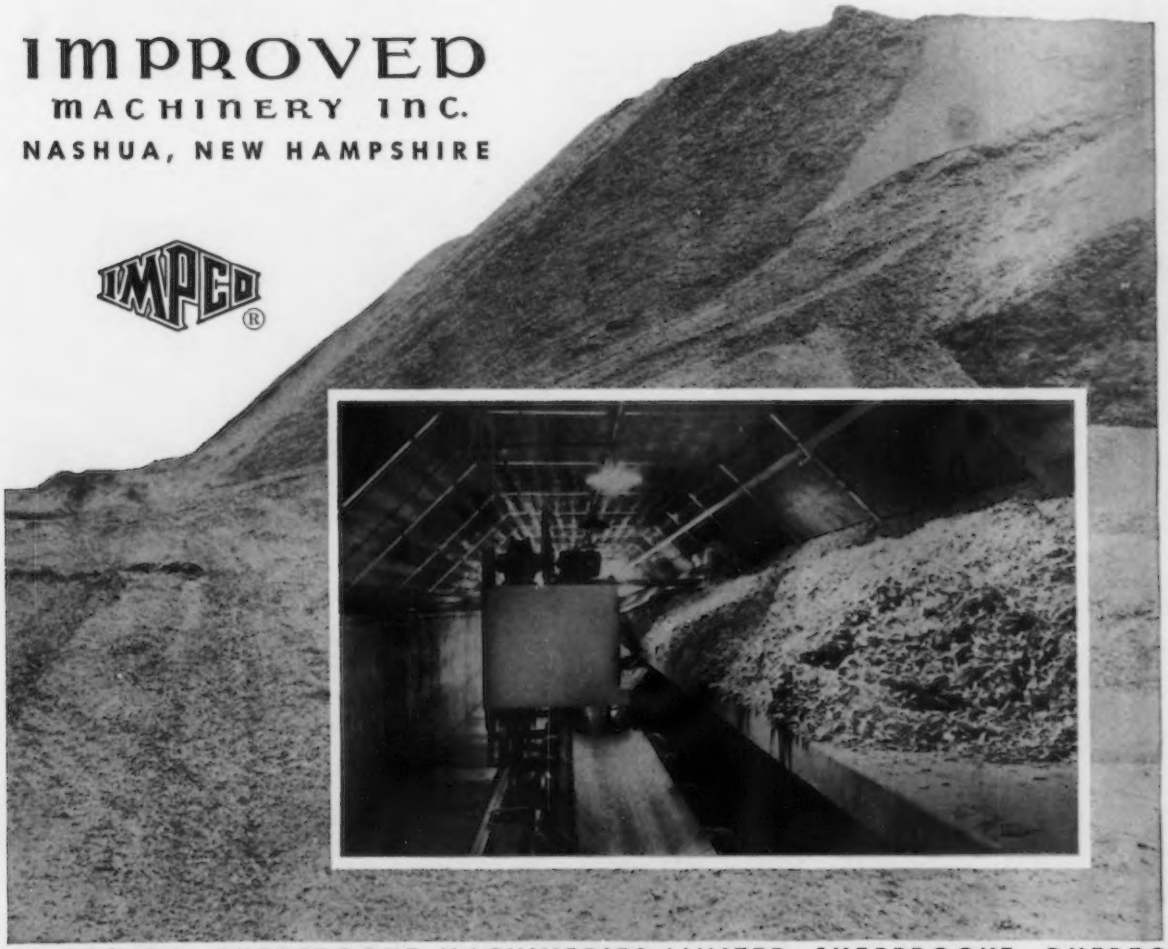


IN CANADA: SHERBROOKE MACHINERIES LIMITED, SHERBROOKE, QUEBEC

NEW LITERATURE

Centrifugal Pumps

Describes Gould's Model 3195 pumps built in sizes ranging 5 to 775 g.p.m., 10-300 ft. TDH, normally stocked in ductile iron, 316 stainless steel and Gould-A-Loy 20 to give quick shipment on units required for piping a wide variety of corrosive liquids at temperatures from —350° to + 500°F. 16 pp. Bulletin No. 725.1. Goulds Pumps, Inc., 225 Black Brook Road, Seneca Falls, N. Y.

Flexidyne Dry Fluid Drive

Features a simplified method for selecting drives and couplings. Eight stock drives and 11 stock couplings are listed for factional to 1,000 h.p. requirements, together with actual installation photographs, product pictures and engineering drawings. Included are tables of weights, dimensions and prices. 20 pp. Bulletin No. 70. Dodge Manufacturing Corp., Mishawaka, Ind.

Ductile Iron Pipe Fittings

Shows available stock sizes and prices for screwed fittings with ratings from 300 p.s.i., to 2000 p.s.i.; pipe lock couplings for 400 p.s.i. and 800 p.s.i., flanges and flanged fittings in the 150 lb. and 300 lb. class, and hexagon bushings and plugs. 12 pp. Bulletin. The Kuhns Brothers Co., 1800 McCall St., Dayton, Ohio.

Facts Book on Extensible Paper

Tells what Clupak is, why it is important, how it is made, how it differs from conventional paper, and gives five reasons why it is better. Contains 30 photographs showing typical applications. 16 pp. two-color, pocket-size booklet. Clupak, Inc., 530 Fifth Ave., New York 36, N. Y.

Pneumatic Temperature Transmitter

Illustrates how easily the transmitter can be installed and adjusted to suit a wide range of application requirements. Features of transmitter design are emphasized. Also included are specifications, descriptions of operating principle, table of temperature ranges, and data on related accessories. Bulletin 13-17C. The Foxboro Co., Foxboro, Mass.

Resistance Charts for Acid-Proof Cements

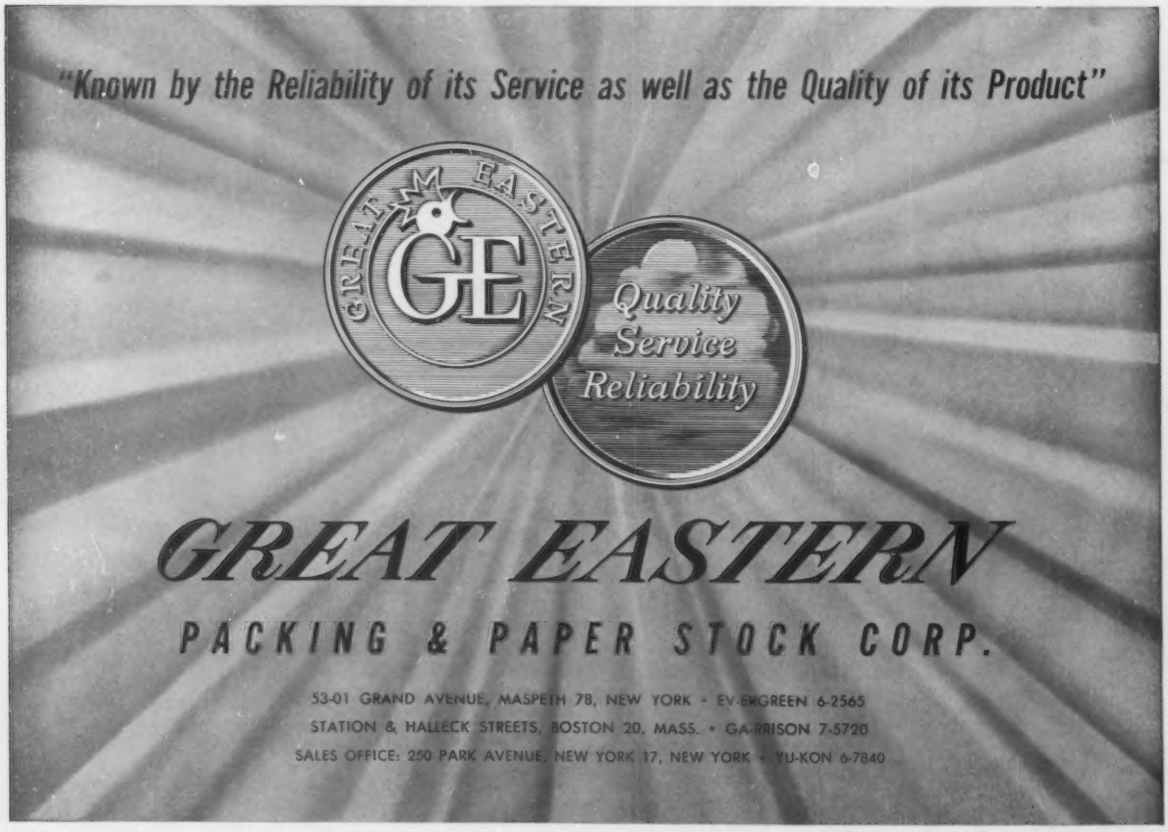
Can be used as a guide in selecting the proper acid-proof cement for corrosion proof installations. Contains a list of more than 75 corrodent solutions and a rating for the various types of acid-proof cements at temperatures of 75°F. and 140°F. Bulletin. Acid-Proof Cement Manufacturers Association, 1015 Chestnut St., Philadelphia 7, Pa.

Surge Arrestor Valve

Describes the Golden-Anderson cushioned surge arrestor valve. Complete technical details and drawings are included. 16 pp. Bulletin w-16. Golden-Anderson Valve Specialty Co., 1228 Ridge Ave., Pittsburgh 33, Pa.

Wedgtite Tensioners

Gives information on tensioners designed to provide full takeup without changing bolt length, eliminate tedious threading and bolt-cutting and reduce downtime. One-quarter inch take-up on each side and 2½ inches overall can be adjusted while the screen is running. Contains complete instructions. 2 pp. Bulletin 26B9995, Allis-Chalmers, Milwaukee 1, Wis.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Bleached Gw'd.	97.50/100.00	97.50/100.00			
Kraft, Blchd.	‡140.00/150.00	‡140.00/150.00	150.00/ —	150.00/ —	150.00/ —
Kraft, Blchd. Hdwd.	135.00/140.00		140.00/ —		
Kraft, Semi-bleached.	130.00/140.00				
Kraft, Unbl.	117.50/125.00	125.00/ —	125.00/130.00	125.00/ —	
Sulphite, Blchd.	‡135.00/140.00	‡135.00/140.00	140.00/ —	140.00/ —	140.00/ —
Sulphite, Bl. Hdwd.	135.00/ —				
Sulphite, Unblchd.	125.00/ —	125.00/ —	125.00/ —	125.00/ —	125.00/ —
Sulphite, Unb'l. Gl'sn.		140.00/ —	134.00/ —		
Soda, Blchd.	130.00/135.00	130.00/135.00			

‡ Depending on Brightness.

COTTON LINTERS

F.O.B. OIL MILLS PER CWT

WEEK ENDED AUGUST 1

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	n.a.	$7.00/ —
3	$7.00/6.50	$7.50/7.25	$7.50/7.00	6.75/6.50
4	6.50/5.75	6.50/6.25	6.50/6.25	6.00/5.75
5	5.75/5.25	6.00/5.75	6.00/5.50	5.25/4.75
6	5.25/4.50	5.50/5.25	5.25/5.00	4.50/4.00
7	4.50/4.00	4.75/4.50	4.75/4.00	n.a.

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKING AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	August 7	August 7	August	August
No. 1 Mixed Paper	$ 7.00/ 9.00	4.00/ 7.00	6.00/ —	12.00/ —
No. 1 News	12.00/ 13.00	11.00/ —	11.00/ —	16.00/ —
Overissue News (Lg. size)	9.00/ 11.00	9.00/ 11.00	16.00/ —	18.00/ —
Mill Wrappers	19.00/ 22.00	7.00/ 9.00	9.00/ —	13.00/ —
Old Corrugated Containers	17.00/ 18.00	18.00/ 18.50	18.00/ —	16.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	28.00/ —	50.00/ —
New Double Kr. Ld. Corr. Cuts	27.50/ 30.00	30.00/ 32.50	35.00/ —	27.50/ —
(Semi-chem. medium)	45.00/ —	40.00/ 45.00	42.50/ —	— / —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	52.50/ —	— / —
New Br. Kraft, Env. Cuts	65.00/ 70.00	65.00/ 70.00	47.50/ —	37.50/ 40.00
New Br. Kr. Bag Waste Prntd.	50.00/ 55.00	50.00/ 60.00	47.50/ —	35.00/ —
New Br. Kr. Bag Waste Unprintd.	55.00/ 60.00	60.00/ 65.00	55.00/ —	43.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	20.00/ 25.00	10.00/ —	25.00/ —
White Newsblanks	42.50/ 45.00	35.00/ 40.00	30.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 60.00	55.00/ 60.00	50.00/ —	75.00/ —
Super Soft White Shvs.	65.00/ 75.00	70.00/ 80.00	60.00/ —	— / —
Hd. White Shvs.	75.00/ 80.00	80.00/ 90.00	75.00/ —	80.00/ —
Hd. White Env. Cuts	90.00/ 95.00	100.00/105.00	80.00/ —	103.00/ —
Col. Tab. Cards	40.00/ 42.50	40.00/ 42.50	45.00/ —	35.00/ —
Manila Tab. Cards	57.50/ 60.00	55.00/ 60.00	65.00/ —	75.00/ —
No. 1 Col. Ledger	32.50/ 35.00	30.00/ 35.00	40.00/ —	18.00/ 23.00
White Ledger	45.00/ 50.00	47.00/52.00	50.00/ —	40.00/ —
Mixed Book & Mag.†	— / —	— / —	8.00/ —	— / —
No. 1 Books‡	15.00/ 17.50	18.00/ 22.00	22.50/ —	8.00/ —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

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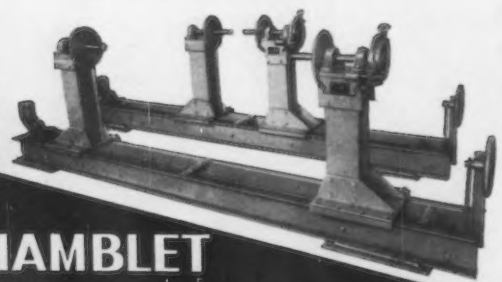

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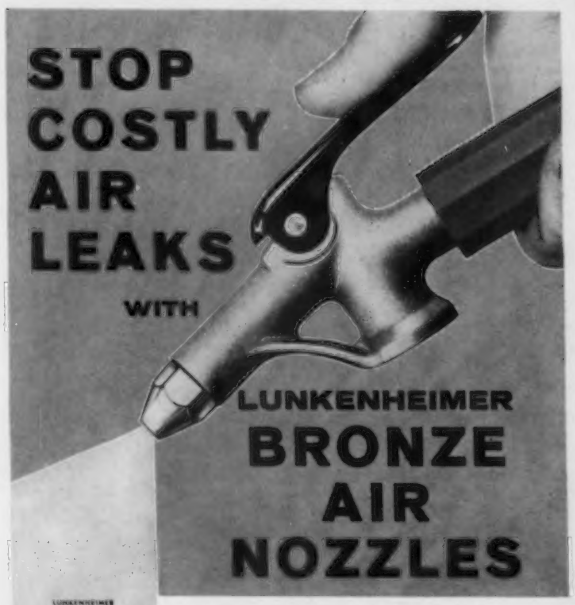

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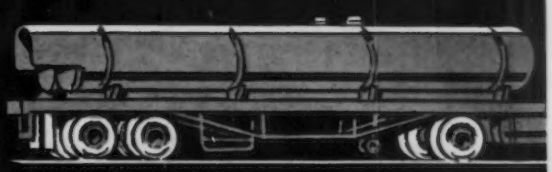

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A-14

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Graduate Mechanical Engineer (APEO) age 40, 12 years supervisory experience as Plant Engineer & Ass. Gen. Supt., with sound experience on Board, Newsprint and Tissue. Familiar with all phases of operation in integrated mill. Presently employed—desires change. Box 61-161 Paper Trade Journal.

A-28

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Manufacturer machine clothing requires man to call on paper mills in southern states. Application confidential and should state experience, age, education, residence, and remuneration expected. Write Box 61-162, care Paper Trade Journal.

O-2

Help Wanted

ENGINEERS TECHNICAL SALES

We are seeking several engineers with pulp and paper industry experience interested in Technical Industrial Sales. Position requires sales contacts and engineering for handling systems and heavy equipment in the U.S. and abroad. Knowledge of dry end operations will be helpful. An engineering degree, or its equivalent in experince, plus an interest and ability to work with customers at upper levels of management are basic requisites. Must be willing to relocate to West Coast. Salary commensurate with experience. Resume should include complete personal and professional qualifications, present salary and photograph. Reply Box 61-163, care Paper Trade Journal.

S-4

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RONNINGEN-PETTER COMPANY
Vicksburg, Michigan

S-4

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Newspaper with Largest Circulation in America seeking Quality Control, Development and Research Engineer.

Age: 28-35 with paper mill experience. Interesting work — Excellent Future.

Send resume of experience, education, photo and salary requirements to Room #807, 220 East 42nd Street, New York 17, New York.

A-28

FOR SALE

1—Complete Rice Barton Fourdrinier, 84" face, 24 dryers, 2 presses, 1 size press, 4 roll calender stack, reel and winder
1—complete Rice Barton Fourdrinier 64" face paper machine consisting of 2 presses, 16 dryers, size press, calender stack, reel and winder
3—E. D. Jones beaters, size 54" x 48" with 70 stainless steel bars (new) and wood fillings
2—E. D. Jones beaters, size 61" x 60" with 76 bars
2—Beater rolls, E. D. Jones, size 52" x 48", 70 bars
1—Morden stock maker with fillings like new, No. 6, complete with motor
1—Noble and Wood Pony Monarch Jordan, type d, stainless steel fillings and anti-friction bearings
2—E. D. Jones Majestic Jordans with bronze fillings
1—Noble and Wood Mammoth, Jr., Jordan
2—No. 3-100 Bird Rotary screens with stainless steel plates
1—No. 2A Bird Rotary screens with bronze plates
2—12 plates Packer screens, roller shoe type
3—10 plates Packer screens, roller shoe type
1—10 plate Murray flat screens, Dunbar type, like new
1—4 plate flat screen, size 42" x 48" with stainless steel flow box and anti-friction bearings
22—Nichols Freeman vortrap classifiers 4" primary units, 4" secondary units, bronze and stainless steel
2—Bird 6" primary dirtecs with 2" auxiliary units with stainless steel stock headers
1—suction press, 154" drilled face, 21½" dia.
1—suction press, 85" drilled face, 14½" dia.
1—suction press, 126" drilled face, 18" dia.
2—suction couches, 106" drilled face, 18" dia.
3—cylinder moulds, 30" dia. x 61" face
2—cylinder moulds, 36" dia. x 84" face
3—cylinder moulds, 40" dia. x 74" face
6—cylinder moulds, 40" dia. x 96" face
3—cylinder moulds, 36" dia. x 96" face
1—cylinder mould, 36" dia. x 106" face
1—Downingtown extractor roll, 24" dia. x 130" face fully rebuilt
4—rubber covered Couch rolls, 18" dia. x 134" face
1—96" face x 19" dia. Microrock roll
1—96" face x 20" dia. rubber covered roll
1—105" face x 18" dia. brass roll
1—105" face x 18" dia. rubber covered roll
1—86" face x 17" dia. stonite roll
1—86" face x 16" dia. rubber covered roll
1—86" face x 18" dia. stonite roll
1—86" face x 16" dia. rubber covered roll
1—80" face x 16" dia. granite roll
1—80" face x 16" dia. rubrock roll
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5—Downingtown dryers, 36" dia. 72" face A.S.M.E. tested and stamped for 50# steam
30—dryers Moore & White, 36" dia. x 84" face
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1—Hamblet sheeter 72" rotary sheeter with Hamblet back stands
1—Moore and White 80" rotary sheeter, complete with layboy
1—Cameron winder No. 6, 45" face complete with slitters
1—Improved Warren winder 72" face, 2 drum
1—Pusey and Jones 2 drum winder, 132" face, in A1 condition

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Fulton, New York LY 2-4254
Area code 315.

A-14

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2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54″ x 48″, cast iron tubs.

CALENDER STACKS

1—3 roll 84″ face.
1—4 roll 72″ face (Extra heavy duty).
1—5 roll 86″ face.

CHIPPERS

1—96″ Murray 4 knife Chipper—anti-friction bearings.
1—84″ 10 knife Carthage Chipper. Anti-friction bearings, with motor.

COATERS

1—27″ High Solid Coater.
1—42″ Chapman Extrusion Type Coater.

CRUSHER & HAMMERMILL

1—Murray Chip Crusher.
1—Williams Hammermill.
1—Jeffrey Shredder.

CYLINDER MOLDS

5—36″ diameter x 75″ face, with couch rolls.
1—36″ diameter x 82″ face.
1—42″ diameter x 96″ face.
2—42″ diameter x 106″ face.
2—60″ diameter x 170″ face.

DRIVES

1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive).
1—#4 Reeves Drive.
2—Falk Drives, 20 H.P. & 160 H.P.
4—Falk Chest Agitator Drives, 10 H.P. ratio 140 to 1.

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1—16″ diameter x 54″ face (steel).
1—28″ diameter x 84″ face.
1—28″ diameter x 48″ face.
4—28″ diameter x 40″ face.
2—Calender Dryers, bronze, 30″ x 128″ with frames, gears & necessary rolls to make up the unit.
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4—36″ diameter x 76″ face.
23—36″ diameter x 84″ face.
14—48″ diameter x 48″ face with bearings.
2—48″ dia. x 52″ face with frames, gears, bearings.
2—48″ x 60″ face, frames, gears & bearings.
1—48″ diameter x 108″ face.
6—48″ diameter x 130″ face.
1—60″ diameter x 92″ face, anti-friction bearings.

EMBOSSING CALENDERS

1—43″ 3-roll Embossing Calender.
1—48″ 2-roll Meadows Embossing Calender.
1—51½″ 3-roll Smoothing Calender.
1—52″ 3-roll Embossing Calender.
1—62″ 2-roll Embosser.
1—90″ 2-roll Smoothing Calender.

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1—Oliver, 10 ft. face x 5½ ft. diameter.
1—Oliver, 8 ft. x 12 ft., rubber lined complete.
1—Oliver Filter, 8 ft. x 8 ft.
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

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1—12 Plate "Packer".
4—14 Plate IMPCO, bronze vats.

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2—#1 Jones High Speed Jordans, Stainless steel tackle, A-F. Bearings, motors.
1—#1 Jones High Speed Jordan.
1—Jones Standard, new spare tackle, with 75 h.p. motor.
1—Noble & Wood Mammoth Jr., with spare plug.
1—Noble & Wood Baby Jordan, anti-friction bearings, with 20 h.p. motor.
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1—70″ Seybold.

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1—Cady Micrometer.
7—Mullen Testers, motorized & hand operated.
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2—Elmendorf Tear Testers.
1—27″ High Solid Coater.
1—Noble & Wood Baby Jordan, anti-friction bearings, with 20 h.p. motor.
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1—8″ x 8″ Elmes Hydraulic Press.
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1—86″ 2 bowl reel.
1—100″ Rice Barton 2 bowl Reel, heavy duty.
1—116″ Downingtown, 2 bowl, anti-friction bearings.
1—123″ 3 bowl Revolving Reel.
1—130″ Pope Reel (Rice Barton).
1—134″ 2 Drum.

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1—Valley Iron Roll Heading Machine, complete, for paper rolls 100″ long x 42″ diameter.

ROLLS

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1—Saveall, Rice Barton, cast iron vat, cylinder mold 48″ diameter x 128″ face, complete with 18″ diameter couch roll, all in very good condition.

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1—16″ "Swift" Paper Shredder.
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1—42″ Cameron Type 9.
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FOR SALE

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Six Cylinder approx. 100" Trim Machine, 30" Suction Drum Roll new about 1948, 5 molds 36" x 114" with about 18" r.c. couch rolls, 6th Vat is Dominion suction vat new 1948, 3 sets B & C primary presses new 1957 with 18" r.c. rolls, (spare set of rolls, new, never used, with bearings), 4 main presses, 4th press reverse press, 61 dryers 48" x 100", 1—36" and 1—24" lead dryer, 2 calenders 7 and 9 roll, Mason Scott duplex cutter new 1952 with Downingtown slitter part, upright two drum reel driven by 15 HP motor and two Fawick Air Clutches and chain drive, two drum winder with slitter part, unwind stand with dynamatic brake, wood cog self contained gear drive, 250 HP DC motor with MG Set as prime mover, all pumps as last operated, produces approx. 70 tons box board, 36 Bauer cleaners on bottom liner, 48 cleaners on top liner.

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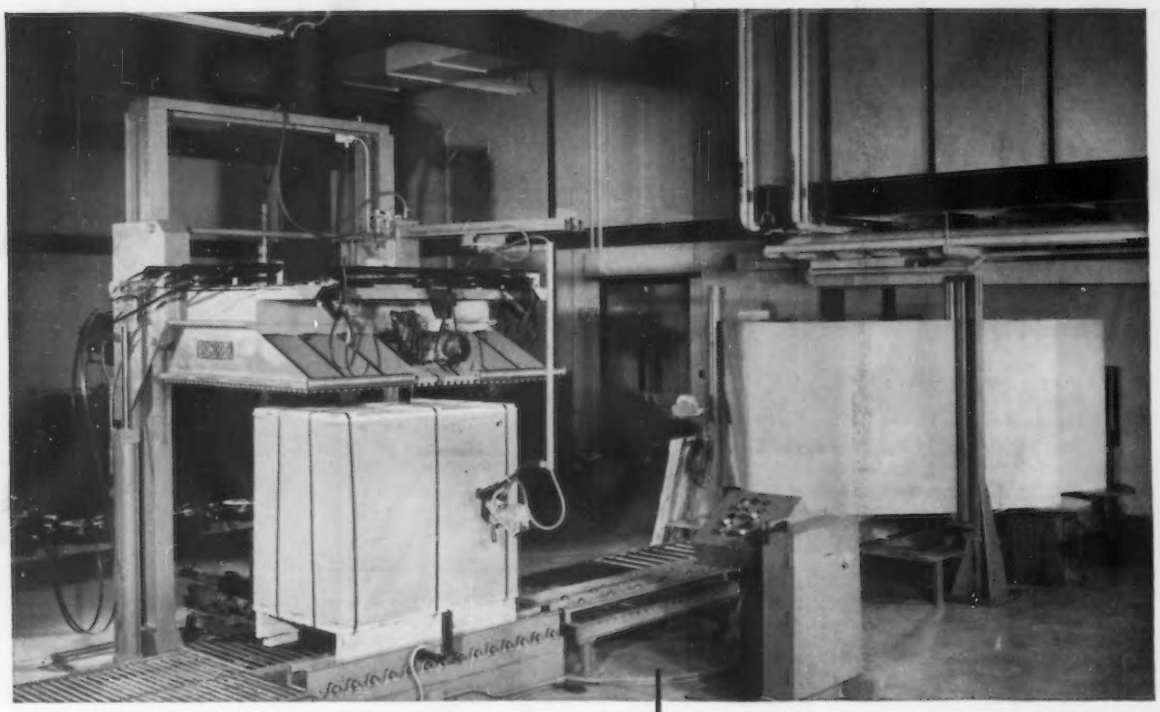

As this skid moves into the compression strapping station, the lengthwise straps drape around the load. The skid automatically stops in position in the press so that saber chutes can extend through notches in the skid runners. Then one, three, or five girth straps can be power fed to the operator, who completes the compression strapping operation while the other man prepares the wrapping station for the next cycle.

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